



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
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Subject: Region IX Preliminary Remediation Goals (PRGs) Second Half 1995

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To: PRG Table Mailing List

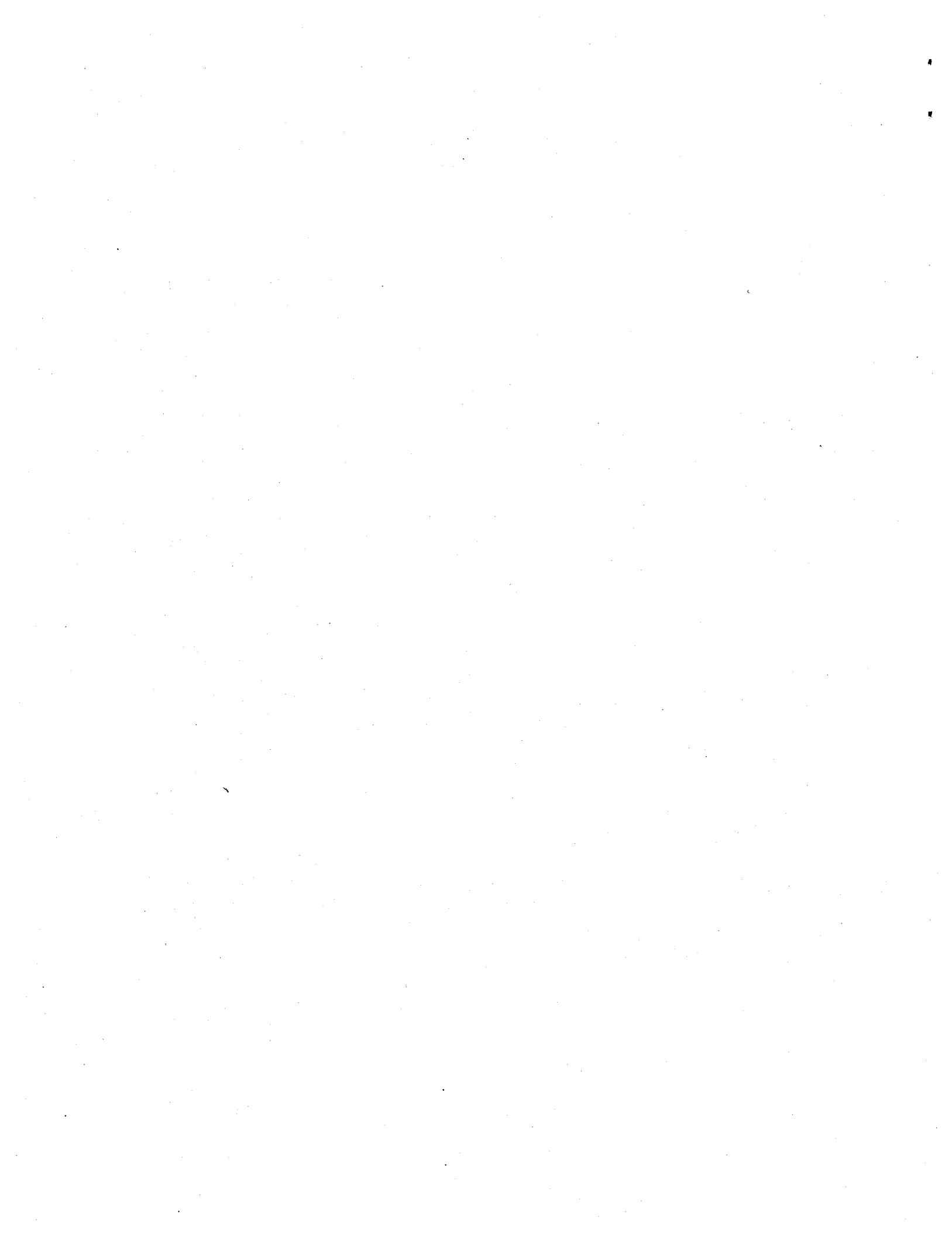
Please find the update to the Region IX PRG table. The table has been revised to reflect the most current EPA toxicological and risk assessment information. Updates to EPA toxicity values were obtained from IRIS through July 1995 and HEAST through November 1994.

Although Region 9 risk-based PRGs are "evergreen" and will change as new methodologies and parameters are developed, they have matured and are changing less than in the past. Meanwhile, the mailing list has increased exponentially and updating and distributing the table by mail has become a considerable burden. Upon reflection, we've decided to change from a semi-annual to annual distribution beginning in 1996. We think this change will allow us to keep publishing the PRG table, while having little effect on the table's usefulness.

If you are not currently on the PRG mailing list, but would like to be, please make the request through EPA's project manager working on your site. Or, for faster service, simply download the file (PRG2ND95.ZIP) from California Regional Water Board's BBS [(510) 286-0404]. Also, in the not-too-distant future, we anticipate that the PRG table will be available via internet access. To determine whether the file is available through this delivery system, direct gopher client to "gopher.epa.gov" and select the following menus: EPA Offices and Regions; Region 9; Superfund Program.

Before relying heavily on any number in the table, it is recommended that the user verify the numbers with a toxicologist or Regional risk assessor because the toxicity / exposure information in the table may contain errors or default assumptions that need to be refined based on further evaluation. If you find an error please send me a note via fax at (415) 744-1916.

This version of the table contains new toxicity values for arsenic, benzene, 1-chloro-1,1-difluoroethane (HCFC-142b), cobalt, danitol, hydrogen chloride, hydrogen sulfide, methyl mercury, and phosphine. The updated values are indicated in boldface print in the table.



DISCLAIMER

Preliminary remediation goals (PRGs) focus on common exposure pathways and may not consider all exposure pathways encountered at CERCLA / RCRA sites (Exhibit 1-1). PRGs do not consider impact to groundwater or address ecological concerns. PRGs are specifically not intended as a (1) stand-alone decision-making tool, (2) as a substitute for EPA guidance for preparing baseline risk assessments, or (3) a rule to determine if a waste is hazardous under RCRA.

The guidance set out in this document is not final Agency action. It is not intended, nor can it be relied upon to create any rights enforceable by any party in litigation with the United States. EPA officials may decide to follow the guidance provided herein, or act at variance with the guidance, based on an analysis of specific circumstances. The Agency also reserves the right to change this guidance at any time without public notice.

1.0 INTRODUCTION

The Region IX PRG table combines current EPA toxicity values with "standard" exposure factors to estimate concentrations in environmental media (soil, air, and water) that are protective of humans, including sensitive groups, over a lifetime. Concentrations above these levels would not automatically designate a site as "dirty" or trigger a response action. However, exceeding a PRG suggests that further evaluation of the potential risks that may be posed by site contaminants is appropriate. Further evaluation may include additional sampling, consideration of ambient levels in the environment, or a reassessment of the assumptions contained in these screening-level estimates (e.g. appropriateness of route-to-route extrapolations).

PRG concentrations presented in the table can be used to screen pollutants in environmental media, trigger further investigation, and provide an initial cleanup goal if applicable. When considering PRGs as preliminary goals, residential concentrations should be used for maximum beneficial uses of a property. Industrial concentrations are included in the table as an alternative cleanup goal for soils, but it is not recommended that industrial concentrations be used for screening sites.

Before applying PRGs as screening tools or initial goals, the user of the table should consider whether the exposure pathways and exposure scenarios at the site are fully accounted for in the PRG calculation. Region IX PRG concentrations are based on exposure pathways for which generally accepted methods, models, and assumptions have been developed (i.e. ingestion, dermal contact, and inhalation) for specific land-use conditions and do not consider impact to groundwater or ecological receptors (see Developing a Conceptual Site Model below).

EXHIBIT 1-1
TYPICAL EXPOSURE PATHWAYS BY MEDIUM
FOR RESIDENTIAL AND INDUSTRIAL LAND USES^a

EXPOSURE PATHWAYS, ASSUMING:		
MEDIUM	RESIDENTIAL LAND USE	INDUSTRIAL LAND USE
Ground Water	<i>Ingestion from drinking</i>	Ingestion from drinking
	<i>Inhalation of volatiles</i>	Inhalation of volatiles
	Dermal absorption from bathing	Dermal absorption
Surface Water	<i>Ingestion from drinking</i>	Ingestion from drinking
	<i>Inhalation of volatiles</i>	Inhalation of volatiles
	Dermal absorption from bathing	Dermal absorption
	Ingestion during swimming	
	Ingestion of contaminated fish	
Soil	<i>Ingestion</i>	<i>Ingestion</i>
	<i>Inhalation of particulates</i>	<i>Inhalation of particulates</i>
	<i>Inhalation of volatiles</i>	<i>Inhalation of volatiles</i>
	Exposure to indoor air from soil gas	Exposure to indoor air from soil gas
	Exposure to ground water contaminated by soil leachate	Exposure to ground water contaminated by soil leachate
	Ingestion via plant, meat, or dairy products	Inhalation of particulates from trucks and heavy equipment
	<i>Dermal absorption</i>	<i>Dermal absorption</i>

Footnote:

^aExposure pathways considered in the PRG calculations are indicated in boldface italics.

2.0 READING THE PRG TABLE

2.1 General Considerations:

With the exceptions described below, PRGs are risk-based concentrations that correspond to either a one-in-one million (10^{-6}) cancer risk or a noncarcinogenic hazard quotient of one, whichever is lower. In most cases, where a substance causes both cancer and noncancer or systemic effects, the 10^{-6} cancer risk will result in a more stringent criteria and consequently this value is presented in the table. PRG concentrations based on cancer risk are indicated by "ca". PRG concentrations based on noncarcinogenic health threats are indicated by "nc".

If the risk-based concentrations are to be used to screen sites, it is recommended that both cancer and noncancer-based PRGs be obtained even though the printed list will contain only the more conservative of the two values. To obtain additional values (e.g. noncancer PRGs for a carcinogenic substance), the user has two options. The simplest option is to obtain the complete set of PRGs by downloading the file (PRG2ND95.ZIP) from California Regional Water Board's Bulletin Board System at [(510)286-0404]. Or, if no modem is available, one could use the equations provided below to calculate additional PRGs.

It has come to my attention that some users have been multiplying the cancer PRG concentrations by 10 or 100 to set "action levels" for triggering remediation or to set less stringent cleanup levels for a specific site after considering non-risk-based factors such as (ambient levels, detection limits, or technological feasibility). This practice recognizes that there may be a range of values that may be "acceptable" for carcinogenic risk (EPA's cancer risk range is from 10^{-6} to 10^{-4}). However, this practice could lead one to overlook serious noncancer health threats and it is strongly recommended that the user consult with a toxicologist or Regional risk assessor before doing this. For carcinogens, I have indicated by asterisk ("ca*") in the PRG table where the noncancer PRGs would be exceeded if the cancer value that is listed is multiplied by 100. Two stars ("ca**") indicate that the noncancer values would be exceeded if the cancer PRG were multiplied by 10. There is no range of "acceptable" noncarcinogenic "risk" so that under no circumstances should noncancer PRGs be multiplied by 10 or 100, when setting final cleanup criteria.

In addition to federal PRGs, the PRG table also includes California EPA PRGs ("CAL-Modified PRGs") for specific chemicals where CAL-EPA values may be more restrictive than the federal values. These differences typically reflect differences in toxicity values and not exposure assumptions. Where CAL-Modified values are presented, they should be used for screening purposes within the State of California.

In general, PRG concentrations in the table are risk-based but for soil there are two important exceptions: 1) for several volatile chemicals PRGs are based on soil saturation equation ("sat") (see below), and 2) for relatively less toxic inorganic and semivolatile contaminants, a non-risk based "ceiling limit" concentration is given as 10^{+5} mg/kg "max". PRG concentrations that are not risk-based (i.e. either "sat" or "max") should be segregated before screening multiple pollutant risks.

2.2 Toxicity Values:

EPA toxicity values, known as noncarcinogenic reference doses (RfD) and carcinogenic slope factors (SF) were obtained from IRIS through July 1995, HEAST through November 1994, and ECAO-Cincinnati. The priority among sources of toxicological constants used are as follows: (1) IRIS (indicated by "I"), (2) HEAST ("h"), (3) ECAO ("e"), and (4) withdrawn from IRIS or HEAST and under review ("x").

Route-to-route extrapolations ("r") were frequently used when there were no toxicity values available for a given route of exposure. Oral cancer slope factors ("SF_o") and reference doses ("RfDo") were used for both oral and inhaled exposures for organic compounds lacking inhalation values. Also, inhalation slope factors ("SF_i") and inhalation reference doses ("RfDi") were frequently used for both inhaled and oral exposures for organic compounds lacking oral values. An additional route extrapolation is the use of oral toxicity values for evaluating dermal exposures. **Although route-to-route methods are a useful screening procedure, the appropriateness of these default assumptions for specific contaminants should be verified by a toxicologist.**

This update contains new toxicity values for arsenic, benzene, 1-chloro-1,1-difluoroethane (HCFC-142b), cobalt, danitol, hydrogen chloride, hydrogen sulfide, methyl mercury, and phosphine. The updated values are indicated in boldface print in the table.

2.3 Soil Factors:

Chemical-specific information for soils, volatilization factors ("VF_s") and skin absorption factors ("ABS"), are listed in the table to provide additional assumptions used to calculate soil PRGs. For volatile chemicals, the "VF_s" term was incorporated into the PRG equations to address long-term inhalation exposures. Volatile organic chemicals (VOCs) are indicated by "1" in the VOC column of the Table and are defined as those chemicals having a Henry's Law constant greater than 10⁵ (atm-m³/mol) and a molecular weight less than 200 g/mole).

Chemical-specific soil "ABS" values are provided for arsenic, cadmium, pentachlorophenol, PCBs, and dioxin as recommended by EPA's Office of Research and Development (1994) for the evaluation of contaminant absorption through the skin. Otherwise, default skin absorption fractions are assumed to be 0.01 and 0.10, for inorganics and organics, respectively. Although it is debatable whether a default of 0.10 skin absorption is appropriate for volatile contaminants in soils, it should be noted that in practical terms, this assumption makes little difference in the soil PRG because the risk driver for volatiles is generally based on the soil-to-air pathway and not ingestion or skin contact.

3.0 USING THE PRG TABLE

The decision to use PRGs at a site will be driven by the potential benefits of having generic risk-based concentrations in the absence of site-specific risk assessments. The original intended use of PRGs was to provide initial cleanup goals for individual chemicals given specific medium and land-use combinations (see RAGS Part B, 1991), however risk-based PRGs actually have several uses in addition to providing initial goals. These include:

- Screening sites to determine further evaluation
- Prioritizing areas of concern at megasites (e.g. federal facilities)
- Calculating risks associated with multiple contaminants

A few basic procedures are recommended for using PRGs properly. These are briefly described below. Potential problems with the use of PRGs are also identified.

3.1 Developing a Conceptual Site Model

The primary condition for use of PRGs is that exposure pathways of concern and conditions at the site match those taken into account by the PRG framework. Thus, it is always necessary to develop a conceptual site model (CSM) to identify likely contaminant source areas, exposure pathways, and potential receptors. This information can be used to determine the applicability of PRGs at the site and the need for additional information. For those pathways not covered by PRGs, a risk assessment specific to these additional pathways may be necessary. Nonetheless, the PRG lookup values will still be useful in such situations for focusing further investigative efforts on the exposure pathways not addressed.

To develop a site-specific CSM, perform an extensive records search and compile existing data (e.g. available site sampling data, historical records, aerial photographs, and hydrogeologic information). Once this information is obtained, CSM worksheets such as those provided in ASTM's *Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites* (1994) can be used to tailor the generic worksheet model to a site-specific CSM. The final CSM diagram represents linkages among contaminant sources, release mechanisms, exposure pathways and routes and receptors. It summarizes our understanding of the contamination problem.

As a final check, the CSM should answer the following questions:

- Are there potential ecological concerns?
- Is there potential for land use other than those covered by the PRGs (that is, residential and industrial)?
- Are there other likely human exposure pathways that were not considered in development of the PRGs (e.g. impact to groundwater, local fish consumption; raising beef, dairy, or other livestock)?
- Are there unusual site conditions (e.g. large areas of contamination, high fugitive dust levels, potential for indoor air contamination)?

If any of these four conditions exist, the PRG may need to be modified to reflect this new information. Suggested references for evaluating pathways not currently evaluated by Region IX PRG's are presented in Exhibit 3-1.

EXHIBIT 3-1
**SUGGESTED READINGS FOR EVALUATING SOIL CONTAMINANT
 PATHWAYS NOT CURRENTLY ADDRESSED BY REGION IX PRGs**

EXPOSURE PATHWAY	REFERENCE
Migration of contaminants to an underlying potable aquifer	<i>Technical Background Document for Soil Screening Guidance - Review Draft</i> (USEPA 1994c)
Ingestion via plant uptake	<i>Technical Support Document for Land Application of Sewage Sludge</i> (USEPA 1992a)
Ingestion via meat or dairy products	<i>Estimating Exposure to Dioxin-Like Compounds - Review Draft</i> (1994d)
Inhalation of volatiles that have migrated into basements	<i>Technical Background Document for Soil Screening Guidance - Review Draft</i> (USEPA 1994c)
Terrestrial environmental pathways	<i>Role of the Ecological Risk Assessment in the Baseline Risk Assessment</i> (USEPA 1994e)

3.2 Background Levels Evaluation

A necessary step in determining the usefulness of Region IX PRGs is the consideration of background contaminant concentrations. EPA may be concerned with two types of background at sites: naturally occurring and anthropogenic. Natural background is usually limited to metals whereas anthropogenic (i.e. human-made) background includes both organic and inorganic contaminants. Before embarking on an extensive sampling and analysis program to determine local background concentrations in the area, one should first compile existing data on the subject. Far too often there is pertinent information in the literature that gets ignored, resulting in needless expenditures of time and money.

Generally EPA does not clean up below natural background. If natural background concentrations are higher than the PRGs, the generic PRGs may not be the best tool for site decisionmaking. Or, an adjustment of the PRG may be needed. For example, naturally occurring arsenic frequently is higher than the soil PRG set equal to a one-in-one-million cancer risk (the point of departure), thus an alternative PRG for arsenic is provided in the lookup tables based on non-cancer endpoints that is still protective of cancer risks as well (i.e. falls within EPA's "acceptable" risk range). Because of the problems associated with adjusting PRGs to an alternate risk level, this procedure is not recommended without first consulting a staff toxicologist at state and / or federal regulatory agencies.

Where anthropogenic background levels exceed PRGs and EPA has determined that a response action is necessary and feasible, EPA's goal will be to develop a comprehensive response to the widespread contamination. This will often require coordination with different authorities that have jurisdiction over the sources of contamination in the area.

3.3 Risk Screening

A suggested stepwise approach for screening sites with PRGs is as follows:

- Perform an extensive records search and compile existing data.

- Identify site contaminants in the PRG Table. Record the PRG concentrations for various media and note whether PRG is based on cancer risk (indicated by "ca") or noncancer hazard (indicated by "nc"). Segregate cancer PRGs from non-cancer PRGs and exclude (but don't eliminate) non-risk based PRGs ("sat" or "max").
- For cancer risk estimates, take the site-specific concentration (maximum or 95 UCL) and divide by the PRG concentrations that are designated for cancer evaluation ("ca"). Multiply this ratio by 10^{-6} to estimate chemical-specific risk. For multiple pollutants, simply add the risk for each chemical :

$$Risk = [(\frac{conc_x}{PRG_x}) + (\frac{conc_y}{PRG_y}) + (\frac{conc_z}{PRG_z})] \times 10^{-6}$$

- For non-cancer hazard estimates. Divide concentration term by its respective non-cancer PRG designated as "nc" and sum the ratios for multiple contaminants. [Note that carcinogens may also have an associated non-cancer PRG that is not listed in the printed copy of the table and these will also need to be obtained in order to complete the non-cancer evaluation.] The non-cancer ratio represents a hazard index (HI). A hazard index of 1 or less is generally considered safe . A ratio greater than 1 suggests further evaluation:

$$Hazard\ Index = [(\frac{conc_x}{PRG_x}) + (\frac{conc_y}{PRG_y}) + (\frac{conc_z}{PRG_z})]$$

For more information on screening site risks, the reader should contact EPA Region IX's Technical Support Section.

3.4 Potential Problems:

As with any risk-based tool, the potential exists for misapplication. In most cases the root cause will be a lack of understanding of the intended use of Region IX PRGs. In order to prevent misuse of PRGs, the following should be avoided:

- Applying PRGs to a site without adequately developing a conceptual site model that identifies relevant exposure pathways and exposure scenarios,
- Not considering background concentrations when choosing PRGs as cleanup goals,
- Use of PRGs as cleanup levels without the nine-criteria analysis specified in the National Contingency Plan (or, comparable analysis for programs outside of Superfund),
- Use of PRGs as cleanup levels without verifying numbers with a toxicologist,
- Use of antiquated PRG tables that have been superseded by more recent publications,
- Not considering the effects of additivity when screening multiple chemicals, and
- Adjusting PRGs upward by factors of 10 or 100 without consulting a toxicologist.

4.0 TECHNICAL SUPPORT DOCUMENTATION

PRGs consider human exposure hazards to chemicals from contact with contaminated soils, air, and water. The emphasis of the PRG equations and technical discussion are aimed at developing initial goals for soils, since this is an area where few standards exist. For air and water, additional reference concentrations or standards are available for many chemicals (e.g. non-zero MCLGs, AWQC, and NAAQS) and consequently the discussion of these media are brief.

4.1 Inhalation of Volatiles and Fugitive Dusts:

Agency toxicity criteria indicate that risks from exposure to some chemicals via inhalation far outweigh the risk via ingestion; therefore soil PRGs have been designed to address this pathway as well. The models used to calculate PRGs for inhalation of volatiles / particulates are updates of risk assessment methods presented in RAGS Part B (USEPA 1991a) and are consistent with the *Technical Background Document for Soil Screening Guidance - Review Draft* (USEPA 1994c).

To address the soil-to-air pathways the PRG calculations incorporate volatilization factors (VF_s) for volatile contaminants and particulate emission factors (PEF) for nonvolatile contaminants. These factors relate soil contaminant concentrations to air contaminant concentrations that may be inhaled on-site. The VF_s and PEF equations can be broken into two separate models: an emission model to estimate emissions of the contaminant from the soil and a dispersion model to simulate the dispersion of the contaminant in the atmosphere.

It should be noted that the box model in RAGS Part B has been replaced with a dispersion term (Q/C) derived from a modeling exercise using meteorological data from 29 locations across the United States because the box model may not be applicable to a broad range of site types and meteorology and does not utilize state-of-the-art techniques developed for regulatory dispersion modeling. The dispersion model for both volatiles and particulates is the AREA-ST, an updated version of the Office of Air Quality Planning and Standards, Industrial Source Complex Model, ISC2. However, different Q/C terms are used in the VF and PEF equations. Los Angeles was selected as the 90th percentile data set for volatiles and Minneapolis was selected as the 90th percentile data set for fugitive dusts (USEPA 1994c). A default source size of 0.5 acres was chosen for the PRG calculations. This is consistent with the default exposure area over which Region IX typically averages contaminant concentrations in soils. This differs from the default (30 acres) assumed in *Technical Background Document for Soil Screening Guidance - Review Draft* (USEPA 1994c). However, based on communications with project managers and technical staff, an assumed contaminant source size of 30 acres was considered inappropriate for most sites. If unusual site conditions exist such that the area source is substantially larger than the default source size assumed here, an alternative Q/C could be applied (see USEPA 1994c).

Volatile Factor for Soils

Volatile chemicals, defined as those chemicals having a Henry's Law constant greater than 10^{-5} (atm-m³/mol) and a molecular weight less than 200 g/mole, were screened for inhalation exposures using a volatilization factor for soils (VF_s).

The emission terms used in the VF_s are chemical-specific and were calculated from physical-chemical information obtained from a number of sources including *Superfund Exposure Assessment Manual* (SEAM, EPA 1988), *Superfund Public Health Evaluation Manual* (EPA 1986), *Subsurface Contamination Reference Guide* (EPA 1990a) and *Fate and Exposure Data* (Howard 1991). In those cases where Diffusivity Coefficients (D_i) were not provided in existing literature, D_i's were calculated

using Fuller's Method described in SEAM. A surrogate term was required for some chemicals that lacked physico-chemical information. In these cases, a proxy chemical of similar structure was used that may over- or under-estimate the PRG for soils. Physical-chemical information is available in the electronic version of the PRG table. To access this information, the user should display the hidden columns in the table.

Equation 4-9 forms the basis for deriving generic soil PRGs for the inhalation pathway. The following parameters in the standardized equation can be replaced with specific site data to develop a simple site-specific PRG

- Source area
- Average soil moisture content
- Average fraction organic carbon content
- Dry soil bulk density

The basic principle of the VF_s model is applicable only if the soil contaminant concentration is at or below soil saturation. Above this level the model cannot predict an accurate VF . If the PRG calculated using VF_s was greater than the calculated "sat" (Equation 4-10), the PRG was set equal to "sat" in accordance with Risk Assessment Guidance for Superfund - Part B (EPA, 1991).

Volatilization Factor for Tap Water

For tap water, an upperbound volatilization constant (VF_s) is used that is based on all uses of household water (e.g. showering, laundering, and dish washing). Certain assumptions were made. For example, it is assumed that the volume of water used in a residence for a family of four is 720 L/day, the volume of the dwelling is 150,000 L and the air exchange rate is 0.25 air changes/hour (Andelman in RAGS Part B). Furthermore, it is assumed that the average transfer efficiency weighted by water use is 50 percent (i.e. half of the concentration of each chemical in water will be transferred into air by all water uses). Note: the range of transfer efficiencies extends from 30% for toilets to 90% for dishwashers.

Particulate Emission Factor for Soils

Inhalation of chemicals adsorbed to respirable particles (PM_{10}) were assessed using a default PEF equal to $1.316 \times 10^9 \text{ m}^3/\text{kg}$ that relates the contaminant concentration in soil with the concentration of respirable particles in the air due to fugitive dust emissions from contaminated soils. The relationship is derived by Cowherd (1985) for a rapid assessment procedure applicable to a typical hazardous waste site where the surface contamination provides a relatively continuous and constant potential for emission over an extended period of time (e.g. years). **This may not be an appropriate assumption for all sites.**

The impact of the PEF on the resultant PRG concentration (that combines soil exposure pathways for ingestion, skin contact, and inhalation) can be assessed by downloading the PRG tables and displaying the hidden columns. With the exception of specific heavy metals, the PEF does not appear to significantly affect most soil PRGs. Equation 4-11 forms the basis for deriving a generic PEF for the inhalation pathway. For more details regarding specific parameters used in the PEF model, the reader is referred to *Technical Background Document for Soil Screening Guidance - Review Draft* (December 1994).

Note: the PEF considers windborne emissions and does not consider dust emissions from traffic or other forms of mechanical disturbance.

4.2 Dermal Absorption of Contaminants in Soil:

Much uncertainty surrounds the determination of hazards associated with skin contact with soils. Thus far, chemical-specific absorption values for skin have been recommended for only five chemicals by EPA's Office of Research and Development. For all other chemicals, default absorption values for inorganics and organics are assumed to be 1 and 10 percent, respectively. An additional uncertainty is the lack of toxicity values for the dermal route. For screening purposes it is assumed that dermal toxicity values can be route-to-route extrapolated from oral values but this may not always be an appropriate assumption and should be checked.

At 10 % skin absorption, the dermal dose is estimated to equal an ingestion dose for adults, using the best estimate default values in *Dermal Exposure Assessment: Principles and Applications* (EPA 1992). At 1 % absorption, the dermal dose is estimated to be 10% of the oral dose (i.e. based on an adult ingestion rate of 100 mg/day). Note: worker and children intake rates, 50 mg/day and 200 mg/day, respectively, yield somewhat different results.

$$\text{dermal dose} = \text{ingestion dose}$$

$$C_{SOIL} \times ABS \times AF \times SA = C_{SOIL} \times IR$$

$$ABS = \frac{(100\text{mg/day})}{[(0.2\text{mg/cm}^2\text{-day})(5000\text{cm}^2)]} = 0.10$$

4.3 Exposure Factors:

Default exposure factors were obtained primarily from RAGS Supplemental Guidance Standard Default *Exposure Factors* (OSWER Directive, 9285.6-03) dated March 25, 1991 and supplemented with more recent information from U.S. EPA's Office of Solid Waste and Emergency Response, U.S. EPA's Office of Research and Development, and California EPA's Department of Toxic Substances Control (see Exhibit 4-1).

Because contact rates may be different for children and adults, carcinogenic risks during the first 30 years of life were calculated using age-adjusted factors ("adj"). Use of age-adjusted factors are especially important for soil ingestion exposures, which are higher during childhood and decrease with age. However, for purposes of combining exposures across pathways, additional age-adjusted factors are used for inhalation and dermal exposures. These factors approximate the integrated exposure from birth until age 30 combining contact rates, body weights, and exposure durations for two age groups - small children and adults. Age-adjusted factors were obtained from RAGS PART B or developed by analogy (see derivations next page).

For soils only, noncarcinogenic contaminants are evaluated in children separately from adults. No age-adjustment factor is used in this case. The focus on children is considered protective of the higher daily intake rates of soil by children and their lower body weight. For maintaining consistency, when evaluating soils, dermal and inhalation exposures are also based on childhood contact rates.

(1) ingestion([mg•yr]/[kg•d]):

$$IFS_{adj} = \frac{ED_c \times IRS_c}{BW_c} + \frac{(ED_r - ED_c) \times IRS_a}{BW_a}$$

(2) skin contact([mg•yr]/[kg•d]):

$$SFS_{adj} = \frac{ED_c \times AF \times SA_c}{BW_c} + \frac{(ED_r - ED_c) \times AF \times SA_a}{BW_a}$$

(3) inhalation ([m³•yr]/[kg•d]):

$$InhF_{adj} = \frac{ED_c \times IRA_c}{BW_c} + \frac{(ED_r - ED_c) \times IRA_a}{BW_a}$$

4.4 PRG Equations:

The equations used to calculate the PRGs for carcinogenic and noncarcinogenic contaminants are presented in Equations 4-1 through 4-8. The PRG equations update RAGS Part B equations. Briefly, PRGs are risk assessments run in reverse. The methodology backcalculates a soil, air, or water concentration level from a target risk (for carcinogens) or hazard quotient (for noncarcinogens). For completeness, the soil equations combine risks from ingestion, skin contact, and inhalation simultaneously. Note: the electronic version of the table also includes route-specific PRGs that are similar to OSWER's Soil Screening Levels (EPA 1994c), should the user decide against combining specific exposure pathways or wants to identify the relative contribution of each pathway to the resulting contaminant concentration in soil.

To calculate PRGs for volatile chemicals in soil, a chemical-specific volatilization factor is calculated per Equation 4-9. Because of its reliance on Henry's law, the VF model is applicable only when the contaminant concentration in soil water is at or below saturation (i.e. there is no free-phase contaminant present). This corresponds to the contaminant concentration in soil at which the adsorptive limits of the soil particles and the solubility limits of the available soil moisture have been reached. Above this point, pure liquid-phase contaminant is expected in the soil. The updated equation for deriving (sat) is presented in Equation 4-10. Note that it supersedes the equation presented in RAGS Part B.

EXHIBIT 4-1
STANDARD DEFAULT FACTORS

<u>Symbol</u>	<u>Definition (units)</u>	<u>Default</u>	<u>Reference</u>
CSFo	Cancer slope factor oral (mg/kg-d)-1	--	IRIS, HEAST, or ECAO
CSFi	Cancer slope factor inhaled (mg/kg-d)-1	--	IRIS, HEAST, or ECAO
RfDo	Reference dose oral (mg/kg-d)	--	IRIS, HEAST, or ECAO
RfDi	Reference dose inhaled (mg/kg-d)	--	IRIS, HEAST, or ECAO
TR	Target cancer risk	10^{-6}	--
THQ	Target hazard quotient	1	--
BWa	Body weight, adult (kg)	70	RAGS (Part A), EPA 1989 (EPA/540/1-89/002)
BWc	Body weight, child (kg)	15	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
ATc	Averaging time - carcinogens (days)	25550	RAGS(Part A), EPA 1989 (EPA/540/1-89/002)
ATn	Averaging time - noncarcinogens (days)	ED*365	
SAa	25% Surface area, adult (cm ² /day)	5000	Dermal Assessment, EPA 1992 (EPA/600/8-91/011B)
SAc	25% Surface area, child (cm ² /day)	2000	Dermal Assessment, EPA 1992 (EPA/ 600/8-9/011B)
AF	Adherence factor (mg/cm ²)	0.2	Dermal Assessment, EPA 1992 (EPA/ 600/8-9/011B)
ABS	Skin absorption (unitless):		
	-- organics	0.1	PEA, Cal-EPA (DTSC, 1994)
	--Inorganics	0.01	PEA, Cal-EPA (DTSC, 1994)
IRAA	Inhalation rate - adult (m ³ /day)	20	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
IRAc	Inhalation rate - child (m ³ /day)	10	RAGS (Part A), EPA 1989 (EPA/540/1-89/002)
IRWa	Drinking water ingestion - adult (L/day)	2	RAGS(Part A), EPA 1989 (EPA/540/1-89/002)
IRWc	Drinking water ingestion - child (L/day)	1	PEA, Cal-EPA (DTSC, 1994)
IRSa	Soil ingestion - adult (mg/day)	100	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
IRSc	Soil ingestion - child (mg/day),	200	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
IRSo	Soil ingestion - occupational (mg/day)	50	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EFr	Exposure frequency - residential (d/y)	350	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EFo	Exposure frequency - occupational (d/y)	250	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EDr	Exposure duration - residential (years)	30 ^a	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EDc	Exposure duration - child (years)	6	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
EDo	Exposure duration - occupational (years)	25	Exposure Factors , EPA 1991 (OSWER No. 9285.6-03)
IFSadj	Age-adjusted factors for carcinogens:		
SFSadj	Ingestion factor, soils ([mg*yr]/[kg*d])	114	RAGS(Part B) , EPA 1991 (OSWER No. 9285.7-01B)
InhFadj	Skin contact factor, soils ([mg*yr]/[kg*d])	503	By analogy to RAGS (Part B)
IFWadj	Inhalation factor ([m ³ *yr]/[kg*d])	11	By analogy to RAGS (Part B)
	Ingestion factor, water ([L*yr]/[kg*d])	1.1	By analogy to RAGS (Part B)
VFw	Volatilization factor for water (L/m ³)	0.5	RAGS(Part B) , EPA 1991 (OSWER No. 9285.7-01B)
PEF	Particulate emission factor (m ³ /kg)	See below	Technical Background Document for Draft SSL (EPA 1994)
VF	Volatilization factor for soil (m ³ /kg)	See below	Technical Background Document for Draft SSL (EPA 1994)
sat	Soil saturation concentration (mg/kg)	See below	Technical Background Document for Draft SSL (EPA 1994)

Footnote:

^aExposure duration for lifetime residents is assumed to be 30 years total. For carcinogens, exposures are combined for children (6 years) and adults (24 years).

PRG EQUATIONS

Soil Equations: For soils, equations were based on three exposure routes (ingestion, skin contact, and inhalation).

Equation 4-1: Combined Exposures to Carcinogenic Contaminants in Residential Soil

$$C(\text{mg/kg}) = \frac{TR \times AT_c}{EF_r \left[\left(\frac{IFS_{adj} \times CSF_o}{10^6 \text{mg/kg}} \right) + \left(\frac{SFS_{adj} \times ABS \times CSF_o}{10^6 \text{mg/kg}} \right) + \left(\frac{InhF_{adj} \times CSF_i}{VF_s^a} \right) \right]}$$

Equation 4-2: Combined Exposures to Noncarcinogenic Contaminants in Residential Soil

$$C(\text{mg/kg}) = \frac{THQ \times BW_c \times AT_n}{EF_r \times ED_c \left[\left(\frac{1}{RfD_o} \times \frac{IRS_c}{10^6 \text{mg/kg}} \right) + \left(\frac{1}{RfD_o} \times \frac{SA_c \times AF \times ABS}{10^6 \text{mg/kg}} \right) + \left(\frac{1}{RfD_i} \times \frac{IRA_c}{VF_s^a} \right) \right]}$$

Equation 4-3: Combined Exposures to Carcinogenic Contaminants in Industrial Soil

$$C(\text{mg/kg}) = \frac{TR \times BW_a \times AT_c}{EF_o \times ED_o \left[\left(\frac{IRS_o \times CSF_o}{10^6 \text{mg/kg}} \right) + \left(\frac{SA_a \times AF \times ABS \times CSF_o}{10^6 \text{mg/kg}} \right) + \left(\frac{IRA_a \times CSF_i}{VF_s^a} \right) \right]}$$

Equation 4-4: Combined Exposures to Noncarcinogenic Contaminants in Industrial Soil

$$C(\text{mg/kg}) = \frac{THQ \times BW_a \times AT_n}{EF_o \times ED_o \left[\left(\frac{1}{RfD_o} \times \frac{IRS_o}{10^6 \text{mg/kg}} \right) + \left(\frac{1}{RfD_o} \times \frac{SA_a \times AF \times ABS}{10^6 \text{mg/kg}} \right) + \left(\frac{1}{RfD_i} \times \frac{IRA_a}{VF_s^a} \right) \right]}$$

Footnote:

^aUse VF_s for volatile chemicals (defined as having a Henry's Law Constant [atm·m³/mol] greater than 10⁵ and a molecular weight less than 200 grams/mol) or PEF for non-volatile chemicals.

Tap Water Equations:

Equation 4-5: Ingestion and Inhalation Exposures to Carcinogenic Contaminants in Water

$$C(\text{ug/L}) = \frac{TR \times AT_c \times 1000\text{ug/mg}}{EF_r [(IFW_{adj} \times CSF_o) + (VF_w \times InhF_{adj} \times CSF_i)]}$$

Equation 4-6: Ingestion and Inhalation Exposures to Noncarcinogenic Contaminants in Water

$$C(\text{ug/L}) = \frac{THQ \times BW_a \times AT_n \times 1000\text{ug/mg}}{EF_r \times ED_r [(\frac{IRW_a}{RfD_o}) + (\frac{VF_w \times IRA_a}{RfD_i})]}$$

Air Equations:

Equation 4-7: Inhalation Exposures to Carcinogenic Contaminants in Air

$$C(\text{ug/m}^3) = \frac{TR \times AT_c \times 1000\text{ug/mg}}{EF_r \times InhF_{adj} \times CSF_i}$$

Equation 4-8: Inhalation Exposures to Noncarcinogenic Contaminants in Air

$$C(\text{ug/m}^3) = \frac{THQ \times RfD_i \times BW_a \times AT_n \times 1000\text{ug/mg}}{EF_r \times ED_r \times IRA_a}$$

SOIL-TO-AIR VOLATILIZATION FACTOR (VF_s)

Equation 4-9: Derivation of the Volatilization Factor

$$VF_s (m^3/kg) = (Q/C) \times \frac{(3.14 \times \alpha \times T)^{1/2}}{(2 \times D_{ei} \times \Theta_a \times K_{as})} \times 10^{-4} m^2/cm^2$$

where:

$$\alpha = \frac{D_{ei} \times \Theta_a}{\Theta_a + [(\rho_s)(1-\Theta_a)/K_{as}]}$$

<u>Parameter</u>	<u>Definition (units)</u>	<u>Default</u>
VF _s	Volatilization factor (m ³ /kg)	--
Q/C	Inverse of the mean conc. at the center of a 0.5-acre square source (g/m ² -s per kg/m ³)	68.81
T	Exposure interval (s)	7.9 x 10 ⁸
Dei	Effective diffusivity (cm ² /s)	Di(Θ _a ^{3.33} /n ²)
Θ _a	Air filled soil porosity (L _{air} /L _{soil})	0.28 or n-wp _b
Di	Diffusivity in air (cm ² /s)	Chemical-specific
n	Total soil porosity (L _{pore} /L _{soil})	0.43 (loam)
w	Average soil moisture content (g _{water} /g _{soil} or cm ³ _{water} /g _{soil})	0.1
ρ _b	Dry soil bulk density (g/cm ³)	1.5 or (1 - n)ρ _s
ρ _s	Soil particle density (g/cm ³)	2.65
K _{as}	Soil-air partition coefficient (g-soil/cm ³ -air)	(H/Kd) x 41 (41 is a conversion factor)
H	Henry's Law constant (atm-m ³ /mol)	Chemical-specific
K _d	Soil-water partition coefficient (cm ³ /g)	K _{oc} x f _{oc}
k _{oc}	Soil organic carbon/water partition coefficient (cm ³ /g)	Chemical-specific
f _{oc}	Fraction organic carbon content of soil (g/g)	0.02 or site-specific

SOIL SATURATION CONCENTRATION (sat)

Equation 4-10: Derivation of the Soil Saturation Limit

$$sat = \frac{S}{\rho_b} (K_d \rho_b + \Theta_w + H' \Theta_a)$$

<u>Parameter</u>	<u>Definition (units)</u>	<u>Default</u>
sat	Soil saturation concentration (mg/kg)	--
S	Solubility in water (mg/L-water)	Chemical-specific
ρ_b	Dry soil bulk density (kg/L)	1.5 or $(1 - n)\rho_s$
n	Total soil porosity (L_{pore}/L_{soil})	0.43 (loam)
ρ_s	Soil particle density (kg/L)	2.65
K_d	Soil-water partition coefficient (L/kg)	$K_{oc} \times f_{oc}$ (organics)
k_{oc}	Soil organic carbon/water partition coefficient (L/kg)	Chemical-specific
f_{oc}	Fraction organic carbon content of soil (g/g)	0.02 or site-specific
Θ_w	Water-filled soil porosity (L_{water}/L_{soil})	0.15 or wp_b
Θ_a	Air filled soil porosity (L_{air}/L_{soil})	0.28 or $n-wp_b$
w	Average soil moisture content (kg_{water}/kg_{soil} or L_{water}/kg_{soil})	0.1
H'	Henry's Law constant (unitless)	$H \times 41$, where 41 is a units conversion factor
H	Henry's Law constant (atm-m ³ /mol)	Chemical-specific

SOIL-TO-AIR PARTICULATE EMISSION FACTOR (PEF)

Equation 4-11: Derivation of the Particulate Emission Factor

$$PEF(m^3/kg) = Q/C \times \frac{3600s/h}{0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x)}$$

<u>Parameter</u>	<u>Definition (units)</u>	<u>Default</u>
PEF	Particulate emission factor (m ³ /kg)	1. 316 x 10 ⁹
Q/C	Inverse of the mean concentration at the center of a 0.5-acre-square source (g/m ² -s per kg/m ³)	90.80
V	Fraction of vegetative cover (unitless)	0.5
U _m	Mean annual windspeed (m/s)	4.69
U _t	Equivalent threshold value of windspeed at 7 m (m/s)	11.32
F(x)	Function dependent on U _m /U _t derived using Cowherd (1985) (unitless)	0.194

REFERENCES

- ASTM. 1994. *Emergency Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites.* Designation ES 38-94. Philadelphia, Pennsylvania.
- California EPA. 1994. Preliminary Endangerment Assessment Guidance Manual. Department of Toxic Substances Control, Sacramento, California.
- Cowherd, C., G. Muleski, P. Engelhart, and D. Gillette. 1985. Rapid Assessment of Exposure to Particulate Emission from Surface Contamination. EPA/600/8-85/002. Prepared for Office of Health and Environmental Assessment, U.S. Environmental Protection Agency, Washington, DC. NTIS PB85-192219 7AS.
- Howard, P.H. 1990. *Handbook of Environmental Fate and Exposure Data for Organic Chemicals.* Lewis Publishers, Chelsea Michigan.
- U.S. EPA. 1986. Superfund Public Health Evaluation Manual. EPA/540/1-86/060. Office of Emergency and Remedial Response, Washington, DC.
- U.S. EPA. 1988. Superfund Exposure Assessment Manual. EPA/540/1-88/001. Office of Emergency and

Remedial Response, Washington, DC.

U.S. EPA. 1990a. Subsurface Contamination Reference Guide. EPA/540/2-90/011. Office of Emergency and Remedial Response, Washington, DC.

U.S. EPA 1990b. Exposure Factors Handbook. EPA/600/8089/043. Office of Health and Environmental Assessment, Washington, DC.

U.S. EPA. 1991a. Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals). Publication 9285.7-01B. Office of Emergency and Remedial Response, Washington, DC. NTIS PB92-963333.

U.S. EPA. 1991b. Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. Publication 9285.6-03. Office of Emergency and Remedial Response, Washington, DC. NTIS PB91-921314.

U.S. EPA. 1992a Technical Support Document for Land Application of Sewage Sludge; Volumes I and II. Office of Water, Washington, DC. 822/R-93-001a,b.

U.S. EPA. 1992b Dermal Exposure Assessment: Principles and Applications. EPA/600/8-91/011B. Office of Health and Environmental Assessment, Washington, DC.

U.S. EPA. 1994a. Integrated Risk Information System (IRIS). Duluth, MN.

U.S. EPA. 1994b. Health Effects Assessment Summary Tables (HEAST): Annual Update, FY 1994. Environmental Criteria Assessment Office, Office of Health and Environmental Assessment, Office of Research and Development, Cincinnati, OH.

U.S. EPA. 1994c. Technical Background Document for Soil Screening Guidance. EPA/540/R-94/106. Office of Emergency and Remedial Response, Washington, DC. PB95-9633530.

U.S. EPA 1994d. Estimating Exposure to Dioxin-Like Compounds. U.S. EPA Office of Research and Development, EPA/600/6-88/005B.

U.S. EPA 1994e. Role of Ecological Assessment in the Baseline Risk Assessment. OSWER Directive No. 9285.7-17. Office of Solid Waste and Emergency Response, Washington, DC.

FOR PLANNING PURPOSES

Key	I=RS	h=HEAST	e=ECAO	x=MTHDRAWN	r=ROUTE EXTRAPOLATION	ca=CANCER PRG	nc=NONCANCER PRG	sat=SOL SATURATION	max=CEILING LIMIT	*where: nc < 1box ca	**where: nc < 10X ca	PRELIMINARY REMEDIAL GOALS (PRGs)											
												CONTAMINANT				Industrial Soil (mg/kg)							
SFo	RDo	SFI	RTDI	V	Skin	Vf	C ABS	(m ³ kg ⁻³)	(mg/kg-d)	CAS No.	Residential Soil (mg/kg)	5.1E+01	2.2E+02	ca*	7.7E+01	ca*	9.4E+00	nc	7.3E+02	6.1E+02	inc		
8.7E-03 i	4.0E-03 i	8.7E-03 r	4.0E-03 r	0	0.10			30580-19-1		Acephate	1.3E+03	1.4E+04	nc	2.2E+02	ca*	7.7E+00	ca*	7.3E+02	6.1E+02	inc			
				2.0E-02 i	2.0E-02 r	0	0.10	75-07-0		Acetaldehyde	2.0E+03	8.4E+03	nc	3.7E+02	nc	9.4E+00	nc	7.3E+01	7.3E+01	nc			
				1.0E-01 i	1.0E-01 r	1	0.10	34256-82-1		Acetochlor	5.2E+01	5.5E+02	nc	1.0E+01	nc	2.9E+01	nc	5.2E+01	5.2E+01	nc			
				8.0E-04 h	2.9E-03 x	0	0.10			Acetone	3.9E+02	4.1E+03	nc	2.2E+02	nc	2.2E+02	nc	3.7E+03	3.7E+03	nc			
				6.0E-03 i	1.4E-02 h	0	0.10	75-05-8		Acetonitrile	4.2E+03	2.5E+04	nc	2.1E+02	nc	3.7E+03	nc	4.7E+02	4.7E+02	nc			
				1.0E-01 i	5.7E-06 x	0	0.10	98-86-2		Acetophenone	8.5E+02	8.9E+03	nc	1.2E+03	nc	2.1E+04	nc	2.1E+02	2.1E+02	nc			
				1.3E-02 i	1.3E-02 r	0	0.10	50594-66-6		Acifluorfen	9.8E-02	ca*		4.2E-01	ca	1.5E-03	ca	1.5E-02	1.5E-02	ca			
				2.0E-02 h	5.7E-06 i	0	0.10	107-02-8		Acrolein	3.2E+04	3.2E+05	nc	3.1E+00	nc	1.8E+04	nc	3.7E+00	3.7E+00	nc			
				4.6E+00 i	4.6E+00 i	0	0.10	79-06-1		Acrylamide	1.3E-01	ca*		3.0E-01	ca*	2.8E-02	ca*	3.7E+00	3.7E+00	ca*			
				5.0E-01 i	8.6E-04 i	0	0.10	79-10-7		Acrylic acid	5.5E+00	5.5E+01	nc	2.4E+01	ca	8.4E-02	ca	8.4E-01	8.4E-01	ca			
				5.4E-01 i	1.0E-03 h	2.4E-01 i	1	0.10	5.4E+03	107-13-1	Acrylonitrile	9.8E+03	9.8E+03	nc	1.0E+05	nc	5.5E+02	nc	5.5E+03	5.5E+03	nc		
				8.1E-02 h	1.0E-02 i	8.0E-02 r	1.0E-02 r	15972-60-8		Alachlor	6.5E+01	6.8E+02	nc	3.7E+00	nc	3.7E+01	nc	3.7E+01	3.7E+01	nc			
				1.5E-01 i				1596-84-5		Alar	6.5E+01	6.8E+02	nc	3.0E+02	nc	1.8E+03	nc	3.7E+00	3.7E+00	nc			
				1.0E-03 i				116-06-3		Aldicarb	6.5E+01	6.8E+02	nc	3.7E+00	nc	3.7E+01	nc	3.7E+00	3.7E+00	nc			
				1.0E-03 i		1.0E-03 r	0	0.10	1646-88-4		Aldicarb sulfone	2.6E-02	ca*		1.1E-01	ca	3.9E-04	ca	4.0E-03	4.0E-03	ca		
				3.0E-05 i	1.7E+01 i	3.0E-05 r	0	0.10	309-00-2		Aldrin	1.6E+04	1.0E+04	nc	1.0E+05	max	9.1E+02	nc	9.1E+03	9.1E+03	nc		
				2.5E-01 i		2.5E-01 r	0	0.10	5585-64-8		Allyl	3.3E+02	3.4E+03	nc	1.8E+03	nc	1.8E+02	nc	1.8E+02	1.8E+02	nc		
				5.0E-03 x		5.0E-03 r	0	0.10	107-18-6		Allyl alcohol	3.2E+03	3.3E+04	nc	1.0E+00	nc	1.8E+03	nc	1.8E+03	1.8E+03	nc		
				5.0E-02 h		2.9E-04 i	0	0.10	107-05-1		Allyl chloride	7.7E+04	1.0E+05	max	2.6E-02	ca*	3.7E+04	ca	3.7E+04	3.7E+04	nc		
				1.0E+00 e				7429-90-5		Aluminum phosphide	3.1E+01	6.8E+02	nc	2.0E+02	nc	1.1E+00	nc	1.5E+01	1.5E+01	nc			
				4.0E-04 i		3.0E-04 r	0	0.10	20859-73-8		Amidro	2.0E+01	2.0E+02	nc	1.1E+00	nc	1.1E+00	nc	1.1E+01	1.1E+01	nc		
				3.0E-04 i		3.0E-04 r	0	0.10	67485-29-4		Ametryn	5.9E+02	6.1E+03	nc	3.3E+01	nc	3.3E+02	nc	3.3E+02	3.3E+02	nc		
				9.0E-03 i		9.0E-03 r	0	0.10	834-12-8		Amidro	4.6E+03	4.8E+04	nc	2.0E+02	inc	2.6E+02	nc	2.6E+03	2.6E+03	nc		
				7.0E-02 h		7.0E-02 r	0	0.10	591-27-5		m-Aminophenol	1.3E+00	1.4E+01	nc	7.3E-02	nc	7.3E-01	nc	7.3E-01	7.3E-01	nc		
				2.0E-05 h		2.0E-05 r	0	0.10	504-24-5		4-Aminopyridine	1.6E+02	1.7E+03	nc	9.1E+00	nc	9.1E+01	nc	9.1E+01	9.1E+01	nc		
				2.5E-03 i		2.5E-03 r	0	0.10	33089-61-1		Amitraz	1.0E+02	1.0E+02	nc	1.0E+02	nc	1.0E+02	nc	1.0E+02	1.0E+02	nc		
								7684-41-7		Ammonia	1.3E+04	1.0E+05	max	1.5E+03	nc	1.5E+03	nc	1.5E+03	1.5E+03	nc			
				2.0E-01 i				7773-06-0		Ammonium sulfamate	1.9E+01	2.0E+02	nc	1.0E+00	nc	1.1E+01	nc	1.1E+01	1.1E+01	nc			
				9.0E-04 i		2.9E-04 i	0	0.10	62-53-3		Aniline	3.1E+01	6.8E+02	nc			1.5E+01	nc	1.5E+01	1.5E+01	nc		
				4.0E-04 i				7440-36-0		Antimony and compounds	3.8E+01	8.5E+02	nc	8.9E+03	nc	4.7E+01	nc	4.7E+02	4.7E+02	nc			
				5.0E-04 i				1314-60-9		Antimony pentoxide	6.9E+01	1.5E+03	nc	1.0E+05	max	7.3E+03	nc	7.3E+03	7.3E+03	nc			
				2.5E-02 h		2.9E-02 i	0	0.10			Antimony potassium tartrate	3.1E+01	6.8E+02	nc	1.0E+00	nc	1.1E+01	nc	1.1E+01	1.1E+01	nc		
				2.5E-02 h		2.5E-02 i	0	0.10			Antimony tetroxide	3.1E+01	6.8E+02	nc			1.5E+01	nc	1.5E+01	1.5E+01	nc		
				3.0E-04 i		3.0E-04 r	0	0.01			Antimony trioxide	1.3E+04	8.5E+02	nc	8.9E+03	nc	4.7E+01	nc	4.7E+02	4.7E+02	nc		
				1.3E-02 i		1.3E-02 r	0	0.10			Apollo	1.8E+01	7.6E+01	ca	2.7E-01	ca	2.7E-00	ca	2.7E-00	2.7E-00	ca		
				2.5E-02 h		5.0E-02 i	0	0.10			Aramite	1.40-57-8											
				3.0E-04 i		3.0E-04 r	0	0.03			Arsenic (noncancer endpoint)	7440-38-2											
				1.5E+00 i		3.0E-04 i	1.5E-01 i	0	0.03			Arsenic (cancer endpoint)	7440-38-2	3.8E-01	ca*	2.4E+00	ca	4.5E-04	ca	4.5E-02	4.5E-02	ca	

FOR PLANNING PURPOSES									
TOXICITY VALUES					SOIL FACTORS				
Key:	I=IRIS h=HEASt	e=ECaO	i=WITHDRAWN	r=ROUTE EXTRAPOLATION	v=CANCER PRG	s=NONCANCER PRG	sat=SOIL SATURATION	max=CEILING LIMIT	*where: nc < 100X ca) **(where: nc < 10X ca)
SF ₀	RDo	SFI	RTDI	V	O skin	VF	CAS No.		
I/(mg/kg-d)	(mg/kg-d)	I/(mg/kg-d)	(mg/kg-d)		C ABS	(m ³ /kg)			
9.0E-03 i				1.4E-05 i	0 NA	778-42-1	Arsine	5.9E+02 nc	6.1E+03 nc
5.0E-02 i				9.0E-03 r	0 0.10	76578-12-6	Assure	3.3E+03 nc	3.4E+04 nc
2.2E-01 h	3.5E-02 h	2.2E-01 r	3.5E-02 h	5.0E-02 r	0 0.10	3337-71-1	Asulam	2.0E+00 ca	8.6E+00 ca
4.0E-04 i				4.0E-04 r	0 0.10	1912-24-9	Atrazine	2.6E+01 nc	2.7E+02 nc
1.1E-01 i		1.1E-01 i				71751-41-2	Avermectin B1	4.0E+00 ca	1.7E+01 ca
7.0E-02 i			1.4E-04 h	1.4E-04 h	0 0.01	103-33-3	Azobenzene	5.3E+03 nc	1.0E+05 max
4.0E-03 i			4.0E-03 r	4.0E-03 r	0 0.10	7440-39-3	Barium and compounds	2.6E+00 ca	2.7E+03 nc
3.0E-02 i			3.0E-02 r	3.0E-02 r	0 0.10	114-26-1	Baygon	2.0E+02 nc	2.7E+03 nc
2.5E-02 i			2.5E-02 r	2.5E-02 r	0 0.10	43121-43-3	Bayleton	1.6E+03 nc	2.0E+04 nc
3.0E-01 i			3.0E-01 r	3.0E-01 r	0 0.10	663359-37-5	Baythroid	1.6E+03 nc	1.7E+04 nc
5.0E-02 i			5.0E-02 r	5.0E-02 r	0 0.10	186-140-1	Benefin	2.0E+04 nc	1.0E+05 max
2.5E-03 i			2.5E-03 r	2.5E-03 r	0 0.10	17804-35-2	Benomyl	3.3E+03 nc	3.4E+04 nc
1.0E-01 i			1.0E-01 r	1.0E-01 r	0 0.10	28057-89-0	Bentazon	1.6E+02 nc	1.7E+03 nc
2.9E-02 i	1.7E-03 r	2.9E-02 i	1.7E-03 e	1 0.10	6.7E+03	71-43-2	Benzaldehyde	6.5E+03 nc	6.8E+04 nc
2.3E-02 i	3.0E-03 i	2.3E-02 i	3.0E-03 r	0 0.10	92-97-5	Benzene	1.4E+00 ca*	3.2E+00 ca*	2.3E-01 ca*
4.0E-00 i		4.0E-00 i	4.0E-00 i	0 0.10	65-95-0	Benzidine	1.9E-03 ca	8.3E-03 ca	3.9E-01 ca*
1.3E-01 i		1.3E+01 r		0 0.10	98-97-7	Benzoic acid	1.0E+05 max	1.0E+05 max	1.5E+05 nc
3.0E-01 h			3.0E-01 r	3.0E-01 r	0 0.10	100-51-6	Benzotrichloride	3.4E-02 ca	1.5E-01 ca
1.7E-01 i			1.7E-01 r	1 0.10	7.1E-04	100-44-7	Benzyl alcohol	2.0E+04 nc	1.0E+05 max
4.3E-00 i	5.0E-03 i	8.4E-00 i		0 0.01	7440-41-7	Benzyl chloride	1.4E+00 ca	3.9E+00 ca	4.0E-02 ca
1.0E-04 i		1.0E-04 r	1.0E-04 r	0 0.10	141-66-2	Beryllium and compounds	1.4E-01 ca	1.1E+00 ca	1.6E-02 ca
1.5E-02 i			1.5E-02 r	0 0.10	82657-04-3	Bidrin	6.5E+00 nc	6.8E+01 nc	5.2E-03 ca
1.5E-02 i			5.0E-02 r	0 0.10	97-52-4	Biphenthin (Talstar)	9.8E+02 nc	1.0E+04 nc	5.5E+02 nc
1.1E-00 i		1.2E-00 i	1.2E-00 i	1 0.10	1.5E-04	111-44-4	1,1-Biphenyl	3.3E+03 nc	3.4E+04 nc
7.0E-02 h	4.0E-02 i	3.5E-02 h	4.0E-02 r	1 0.10	5.4E-04	39638-32-9	Bis(2-chloroethyl)ether	7.4E-02 ca	1.7E-01 ca
2.2E-02 i		2.2E-02 i		1 0.10	4.7E-03	542-88-1	Bis(chloromethyl)ether	3.9E+00 ca	1.4E-04 ca
7.0E-02 x		7.0E-02 x	7.0E-02 x	0 0.10	108-60-1	Bis(2-chloro-1-methylethyl)ether	6.3E+00 ca	2.7E+01 ca	9.6E-02 ca
1.4E-02 i	2.0E-02 i	1.4E-02 r	2.2E-02 r	0 0.10	117-81-7	Bis(2-ethylhexyl)phthalate (DEHP)	3.2E+01 ca*	1.4E+02 ca	4.8E-01 ca
5.0E-02 i			5.0E-02 r	0 0.10	80-05-7	Bisphenol A	3.3E+03 nc	3.4E+04 nc	1.8E+03 nc
9.0E-02 i			5.7E-03 h	0 0.10	7440-42-8	Boron	5.9E+03 nc	6.1E+04 nc	2.1E+01 nc
				2.0E-04 h	0 0.10	7637-07-2	Boron trifluoride		7.3E-01 nc
6.2E-02 i	2.0E-02 i		2.0E-02 r	1 0.10	1.6E-04	75-27-4	Bromodichloromethane	1.4E+00 ca	1.1E-01 ca
1.1E-01 i	8.6E-04 r	1.1E-01 h	8.6E-04 i	1 0.10	8.3E+03	593-50-2	Bromoethene (vinyl bromide)	4.5E-01 ca*	1.0E-01 ca*
7.9E-03 i	2.0E-02 i	3.9E-03 i	2.0E-02 r	0 0.10	75-25-2	Bromoform (tribromomethane)	5.6E+01 ca**	2.4E+02 ca*	8.5E+00 ca*
1.4E-03 i			1.4E-03 i	1 0.10	8.3E+03	74-83-9	Bromomethane	1.5E+01 nc	5.2E+00 nc
5.0E-03 h			5.0E-03 r	0 0.10	2104-96-3	4-Bromophenyl phenyl ether	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc
2.0E-02 i			2.0E-02 r	0 0.10	1689-84-5	Bromophos	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc

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TOXICITY VALUES										SOIL FACTORS			CONTAMINANT			PRELIMINARY REMEDIAL GOALS (PRGs)		
SFO	RDo	SFI	RDI	V	skin	O	VF	CAS No.	Soil (mg/kg)	Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m ³)	Tap Water (ug/l)					
1/(mg/kg-d)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)															
2.0E-02 i	2.0E-02 r	0	0.10	1689-98-2	Bromoxynil octanoate				1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc						
9.8E-01 i	9.8E-01 i	1	0.10	1.3E+03	1,3-Butadiene	8.6E-03 ca	1.8E-02 ca		8.6E-03 ca	6.9E-03 ca	1.1E-02 ca							
1.0E-01 i	1.0E-01 r	0	0.10	71-36-3	1-Butanol	6.5E+03 nc	6.8E+04 nc		6.5E+03 nc	3.7E+02 nc	3.7E+03 nc							
5.0E-02 i	5.0E-02 r	0	0.10	2008-41-5	Butylate	3.3E+03 nc	3.4E+04 nc		1.3E+04 nc	1.0E+05 max	7.3E+02 nc	1.8E+03 nc						
2.0E-01 i	2.0E-01 r	0	0.10	85-68-7	Butylbenzyl phthalate	1.3E+04 nc	1.0E+05 max		6.5E+04 nc	1.0E+05 max	3.7E+03 nc	3.7E+04 nc						
1.0E+00 i	1.0E+00 r	0	0.10	85-70-1	Butylphthalyl butylglycolate	2.0E+02 nc	2.0E+03 nc		2.0E+02 nc	1.1E+01 nc	1.1E+02 nc							
3.0E-03 h	3.0E-03 r	0	0.10	75-80-5	Cacodylic acid	3.8E+01 nc	8.5E+02 nc		3.8E+01 nc	1.1E-03 ca	1.8E+01 nc							
5.0E-04 i	6.3E+00 i	0	0.01	7440-43-9	Cadmium and compounds	9.0E+00			3.3E+04 nc	1.0E+05 max	1.8E+03 nc	1.8E+04 nc						
5.0E-01 i	5.0E-01 r	0	0.10	105-60-2	"CAL-Modified PRG" (PEA, 1994)	5.2E+01 ca**	2.2E+02 ca*		5.2E+01 ca**	7.8E-01 ca*	7.8E+00 ca*							
8.6E-03 h	2.0E-03 i	8.6E-03 r	2.0E-03 r	0	Caprolactam	1.3E+02 ca*	5.5E+02 ca		6.5E+03 nc	6.8E+04 nc	1.9E+00 ca	1.9E+01 ca						
3.5E-03 h	1.3E-01 i	3.5E-03 r	1.3E-01 r	0	0.10	133-06-2	Captan		6.5E+03 nc	6.8E+03 nc	4.0E+02 nc	3.7E+03 nc						
	1.0E-01 i		1.1E-01 r	0	0.10	63-25-2	Carbaryl		2.2E+01 ca	9.5E+01 ca	3.4E-01 ca	3.4E+00 ca						
2.0E-02 h	2.0E-02 r		0	0.10	86-74-8	Carbazole		3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc							
	5.0E-03 i		5.0E-03 r	0	0.10	1563-66-2	Carbofuran		1.6E+01 nc	5.2E+01 nc	1.0E+01 nc	2.1E+01 nc						
	1.0E-01 i		2.9E-03 h	1	0.10	3.6E+03	75-15-0	Carbon disulfide	4.7E-01 ca*	1.1E+00 ca*	1.3E-01 ca*	1.7E-01 ca*						
1.3E-01 i	7.0E-04 i	5.3E-02 i	5.7E-04 e	1	0.10	4.3E+03	56-22-5	Carbon tetrachloride	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc						
	1.0E-02 i		1.0E-02 r	0	0.10	55285-14-8	Carbosulfan		6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc						
	1.0E-01 i		1.0E-01 r	0	0.10	5224-68-4	Carboxin		1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc						
	2.0E-03 i		2.0E-03 r	0	0.10	302-17-0	Chloral		9.8E+02 nc	1.0E+04 nc	5.5E+01 nc	5.5E+02 nc						
	1.5E-02 i		1.5E-02 r	0	0.10	133-90-4	Chloramben		1.1E+00 ca	4.7E+00 ca	1.7E-02 ca	1.7E-01 ca						
	4.0E-01 h		4.0E-01 r	0	0.10	118-75-2	Chloranil		3.4E-01 ca**	1.5E+00 ca*	5.2E-03 ca*	5.2E-02 ca*						
	1.3E+00 i		6.0E-05 i	1.3E+00 i	6.0E-05 r	0	0.10	57-74-9	Chlordane	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc					
	2.0E-02 i		2.0E-02 r	0	0.10	90982-32-4	Chlorimuron-ethyl		7.7E+03 nc	1.7E+05 nc	3.7E+03 nc	3.7E+03 nc						
	1.0E-01 i		5.7E-05 i	1	0.10	10049-04-4	Chlorine dioxide				2.1E-01 nc							
				1	0.10	107-20-0	Chloroacetaldehyde											
	2.0E-03 h		2.0E-03 r	0	0.10	79-11-8	Chloroacetic acid		1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc						
	8.6E-06 r		8.6E-06 i	1	0.10	6.4E+03	532-27-4	2-Chloroacetophenone	7.5E-02 nc	2.7E-01 nc	3.1E-02 nc	5.2E-02 nc						
	4.0E-03 i		4.0E-03 r	0	0.10	106-47-8	4-Chloroaniline		2.6E+02 nc	2.7E+03 nc	1.5E+01 nc	1.5E+02 nc						
	2.0E-02 i		5.7E-03 h	1	0.10	2.1E+04	108-90-7	Chlorobenzene	1.6E+02 nc	5.7E+02 nc	2.1E+01 nc	3.9E+01 nc						
	2.7E-01 h	2.0E-02 i	2.7E-01 r	0	0.10	510-15-8	Chlorobenzilate		1.6E+00 ca	7.1E+00 ca	2.5E-02 ca	2.5E-01 ca						
	2.0E-01 h		2.0E-01 r	0	0.10	74-11-3	p-Chlorobenzoic acid		1.3E+04 nc	1.0E+05 max	7.3E+02 nc	7.3E+03 nc						
	2.0E-02 h		2.0E-02 r	0	0.10	98-56-6	4-Chlorobenzotrifluoride		1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc						
	2.0E-02 h		2.0E-03 h	1	0.10	2.0E+03	126-99-8	2-Chloro-1,3-butadiene	6.3E+00 nc	2.1E+01 nc	7.3E+00 nc	1.4E+01 nc						
	4.0E-01 h		4.0E-01 r	1	0.10	2.0E+03	109-69-3	1-Chlorobutane	1.0E+03 sat	1.0E+03 sat	1.5E+03 nc	2.4E+03 nc						
	1.4E+01 r		1.4E+01 i	1	0.10	1.3E+03	75-45-6	1-Chloro-1,1-difluoroethane (HCFC-142b)	5.7E+02 sat	5.7E+02 sat	5.2E+04 nc	8.7E+04 nc						
	1.4E+01 r		1.4E+01 i	1	0.10	1.3E+03	75-45-6	2-Chloroethyl vinyl ether			5.7E+02 sat	5.1E+04 nc	8.5E+04 nc					

FOR PLANNING PURPOSES

TOXICITY VALUES										SOIL FACTORS										CONTAMINANT										PRELIMINARY REMEDIAL GOALS (PRGs)									
SF _o	RfD _o	SFI	RfD _i	VF	CAS No.	Soil	Industrial	Ambient Air	Tap Water	Residential	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil					
1/(mg/kg)	(mg/kg-d)	1/(mg/kg-d)	(mg/kg-d)	(m ³ /kg)		(mg/kg)	(mg/kg)	(ug/m ³)	(ug/l)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)						
6.1E-03 i	1.0E-02 i	8.1E-02 i	1.0E-02 r	1	0.10	6.4E-03	67-66-3	Chloroform		5.3E-01 ca	1.1E+00 ca	8.4E-02 ca	1.6E-01 ca																										
1.3E-02 h		6.3E-03 h		1	0.10	2.0E-03	74-87-3	Chloromethane		2.0E+00 ca	4.3E+00 ca	1.1E+00 ca	1.5E+00 ca																										
5.8E-01 h		5.8E-01 r		0	0.10	9e-69-2	4-Chloro-2-methylaniline			7.7E-01 ca	3.3E+00 ca	1.2E-02 ca	1.2E-01 ca																										
4.6E-01 h		4.6E-01 r		0	0.10	3165-93-3	4-Chloro-2-methylaniline hydrochloride			9.7E-01 ca	4.1E+00 ca	1.5E-02 ca	1.5E-01 ca																										
2.5E-02 h		8.0E-02 i		8.0E-02 r	0	0.10	9e-58-7	beta-Chloronaphthalene			5.2E+03 nc	5.5E+04 nc	2.9E+02 nc	2.9E+03 nc																									
1.8E-02 h				2.5E-02 r	r	0	0.10	88-73-3	o-Chloronitrobenzene			1.8E+01 ca	7.6E+01 ca	2.7E-01 ca	2.7E+00 ca																								
								p-Chloronitrobenzene			2.5E+01 ca	1.1E+02 ca	3.7E-01 ca	3.7E+00 ca																									
								1.8E-02 r	r		100-00-5																												
								5.0E-03 i		5.0E-03 r	0	0.10	9e-57-8	2-Chlorophenol																									
								2.9E-02 r		2.9E-02 h	1	0.10	9.7E-03	75-29-6	2-Chloropropane																								
								1.1E-02 h	1.1E-02 i	1.1E-02 r	0	0.10	1897-45-6	Chlorothalanol																									
								2.0E-02 i		2.0E-02 r	1	0.10	1.5E+04	9e-49-8	o-Chlorotoluene																								
								2.0E-01 i		2.0E-01 r	0	0.10	101-21-3	Chloropropan																									
								3.0E-03 i		3.0E-03 r	0	0.10	2821-88-2	Chlorpyrifos																									
								1.0E-02 h		1.0E-02 r	0	0.10	5598-13-0	Chlorpyrifos-methyl																									
								5.0E-02 i		5.0E-02 r	0	0.10	64902-72-3	Chlorsulfuron																									
								8.0E-04 h		8.0E-04 r	0	0.10	6032-56-4	Chlothiophos																									
								4.2E+01 i		4.2E+01 i	0	0.01	n/a	Total Chromium (1/6 ratio Cr VI/Cr III)																									
								5.0E-03 i	2.9E-02 i	2.9E-02 r	0	0.01	7440-47-3	Chromium VI																									
								6.0E-02 s	2.9E-04 h	2.9E-04 r	0	0.01	7440-46-4	"CAL-Modified PRG" (PEA, 1994)																									
								2.2E+00 i		2.2E+00 i	0	0.01	8007-45-2	Coke Oven Emissions																									
								3.7E-02 h		3.7E-02 h	0	0.01	7440-50-8	Copper and compounds																									
								1.9E-00 h	1.0E-02 x	1.9E-00 x	1	0.10	3.5E+03	123-73-9	Crotonaldehyde																								
								4.0E-02 i		4.0E-02 i	0	0.10	2.6E-03 h	Cumene																									
								8.4E-01 h	2.0E-03 h	8.4E-01 r	0	0.10	9e-32-8	Cyanazine																									
								2.0E-03 h		2.0E-03 r	0	0.01	n/a	Cyanides																									
								1.0E-01 h		1.0E-01 h	0	0.01	542-62-1	Barium cyanide																									
								5.0E-03 i		5.0E-03 i	0	0.01	544-92-3	Copper cyanide																									
								4.0E-02 i		4.0E-02 i	0	0.01	592-01-8	Calcium cyanide																									
								4.0E-02 i		4.0E-02 i	0	0.10	460-19-5	Cyanogen																									
								9.0E-02 i		9.0E-02 i	0	0.10	506-68-3	Cyanogen bromide																									
								5.0E-02 i		5.0E-02 i	0	0.10	506-77-4	Cyanogen chloride																									
								2.0E-02 i		2.0E-02 i	0	0.10	57-12-5	Free cyanide																									
								8.6E-04 i		8.6E-04 i	1	0.10	74-90-8	Hydrogen cyanide																									
								5.0E-02 i		5.0E-02 i	0	0.10	151-50-8	Potassium cyanide																									
								2.0E-01 i		2.0E-01 i	0	0.10	508-61-6	Silver cyanide																									
								1.0E-01 i		1.0E-01 i	0	0.10	508-64-9	Sodium cyanide																									
								4.0E-02 i		4.0E-02 i	0	0.10	143-33-9	Zinc cyanide																									
								5.0E-02 i		5.0E-02 i	0	0.10	557-21-1																										

FOR PLANNING PURPOSES													
TOXICITY VALUES		SOIL FACTORS				CONTAMINANT				PRELIMINARY REMEDIAL GOALS (PRGs)			
Key	i=RIS h=HEA/st	e=ECAO	x=VITHDRAWN	f=ROUTE EXTRAPOLATION	ca=CANCER PRG	re=NONCANCER PRG	sat=SOIL SATURATION	max=CEILING LIMIT	(where: nc < 100X ca)	** (where: nc < 10X ca)			
1/(mg/kg-d)	RfDo	SFI	RfDI	t/(mg/kg-d)	C ABS	V skin	O skin	C ABS	(mg/m ³ /g)	CAS No.	Residential Soil (mg/kg)		
5.0E+00 i	5.0E+00 r	0 0.10	108-34-1	Cyclohexanone		1.0E+05 max	1.0E+05 max	1.0E+04 nc	1.8E+05 nc		Ambient Air (ug/m ³)		
2.0E-01 i	2.0E-01 r	0 0.10	108-31-8	Cyclohexylamine		1.3E+04 nc	1.0E+05 max	7.3E+02 nc	7.3E+03 nc		Tap Water (ug/l)		
5.0E-03 i	5.0E-03 r	0 0.10	68085-85-8	Chalothrinkarate		3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc				
1.0E-02 i	1.0E-02 r	0 0.10	52315-07-8	Cypermethrin		6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc				
7.5E-03 i	7.5E-03 r	0 0.10	66215-27-8	Cyromazine		4.9E+02 nc	5.1E+03 nc	2.7E+01 nc	2.7E+02 nc				
1.0E-02 i	1.0E-02 r	0 0.10	1861-32-1	Dacthal		6.5E+02 nc	1.0E+05 max	3.7E+01 nc	3.7E+02 nc				
3.0E-02 i	3.0E-02 r	0 0.10	75-93-0	Dalapon		2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc				
2.5E-02 i	2.5E-02 r	0 0.10	39515-41-8	Danitol		1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc				
2.4E-01 i	2.4E-01 r	0 0.10	72-54-8	DDD		1.9E+00 ca	7.9E+00 ca	2.8E-02 ca	2.8E-01 ca				
3.4E-01 i	3.4E-01 r	0 0.10	72-55-9	DDE		1.3E+00 ca	5.6E+00 ca	2.0E-02 ca	2.0E-01 ca				
3.4E-01 i	5.0E-04 i	3.4E-01 i	5.0E-04 r	0 0.10	50-29-3	DDT	1.3E+00 ca*	5.6E+00 ca*	2.0E-02 ca*	2.0E-01 ca*			
1.0E-02 i	1.0E-02 r	0 0.10	1163-19-5	Decabromodiphenyl ether		6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc				
4.0E-05 i	4.0E-05 r	0 0.10	8065-48-3	Demeton		2.6E+00 nc	2.7E+01 nc	1.5E-01 nc	1.5E+00 nc				
6.1E-02 h	6.1E-02 r	0 0.10	2303-16-4	Diallate		7.3E+00 ca	3.1E+01 ca	1.1E-01 ca	1.1E+00 ca				
9.0E-04 h	9.0E-04 r	0 0.10	333-41-5	Diazinon		5.9E+01 nc	6.1E+02 nc	3.3E+00 nc	3.3E+01 nc				
4.0E-03 e		4.0E-03 r	0 0.10	132-64-9	Dibenzofuran		2.6E+02 nc	2.7E+03 nc	1.5E+01 nc	1.5E+02 nc			
1.0E-02 i	1.0E-02 r	0 0.10	106-37-6	1,4-Dibromobenzene		6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc				
8.4E-02 i	2.0E-02 r	0 0.10	124-48-1	Dibromochloromethane		5.3E+00 ca*	2.3E+01 ca	8.0E-02 ca	1.0E+00 ca				
1.4E+00 h	5.7E-05 r	2.4E-03 h	5.7E-05 i	0 0.10	96-12-8	1,2-Dibromo-3-chloropropane	3.2E-01 ca*	1.4E+00 ca*	2.1E-01 nc	4.8E-02 ca*			
8.5E+01 i	5.7E-05 r	7.7E-01 i	5.7E-05 h	1 0.10	2.0E+04	106-93-4	1,2-Dibromoethane	6.0E-02	9.6E-04	4.7E-03			
1.0E-01 i		1.0E-01 r	1.0E-01 r	0 0.10	84-74-2	Dibutyl phthalate	5.1E-03 ca	2.1E-02 ca	8.7E-03 ca*	7.6E-04 ca			
3.0E-02 i		3.0E-02 r	0 0.10	1918-00-9	Dicamba	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc				
9.0E-02 i		5.7E-02 x	1 0.10	4.0E+04	95-50-1	1,2-Dichlorobenzene	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc			
2.4E-02 h	2.3E-01 r	2.4E-02 r	2.3E-01 i	1 0.10	4.0E+04	541-73-1	1,3-Dichlorobenzene	7.4E+00 ca	2.8E+03 sat				
4.5E-01 i		4.5E-01 r	0 0.10	91-94-1	3,3-Dichlorobenzoizidine	9.9E-01 ca	4.2E+00 ca	1.5E-02 ca	1.5E-01 ca				
9.3E+00 r	9.3E-00 h	5.7E-02 h	1 0.10	1.3E+04	764-41-0	1,4-Dichloro-2-butene	7.6E-03 ca	1.8E-02 ca	7.2E-04 ca	1.2E-03 ca			
2.0E-01 i	2.0E-01 r	1.4E-01 h	1 0.10	4.3E+04	106-46-7	1,4-Dichlorobenzene	1.1E+02 nc	3.7E+02 nc	2.1E+02 nc	3.9E+02 nc			
9.0E-03 h	9.1E-02 i	9.1E-02 i	1 0.10	6.6E+03	107-06-2	1,2-Dichloroethane (EDC)	8.4E+02 nc	3.0E+03 nc	5.2E+02 nc	8.1E+02 nc			
6.0E-01 i	9.0E-03 i	1.8E-01 i	9.0E-03 r	1 0.10	1.0E+03	75-35-4	1,1-Dichloroethylene	4.4E-01 ca	9.8E-01 ca	7.4E-02 ca	1.2E-01 ca		
1.0E-02 h		1.0E-02 r	1 0.10	4.1E+03	156-59-2	1,2-Dichloroethylene (cis)	5.9E+01 nc	2.0E+02 nc	3.7E+01 nc	6.1E+01 nc			
2.0E-02 i		2.0E-02 r	1 0.10	6.1E+03	156-60-5	1,2-Dichloroethylene (trans)	1.7E+02 nc	6.0E+02 nc	7.3E+01 nc	1.2E+02 nc			
9.0E-03 h		9.0E-03 r	1 0.10	6.1E+03	540-59-0	1,2-Dichloroethylene (mixture)	7.5E+01 nc	2.7E+02 nc	3.3E+01 nc	5.5E+01 nc			
3.0E-03 i		3.0E-03 r	0 0.10	120-83-2	2,4-Dichlorophenol		2.0E+02 nc	2.0E+03 nc	1.1E+01 nc	1.1E+02 nc			
8.0E-03 i		8.0E-03 r	0 0.10	94-52-6	4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB)		5.2E+02 nc	5.5E+03 nc	2.9E+01 nc	2.9E+02 nc			
1.0E-02 i		1.0E-02 r	0 0.10	94-75-7	2,4-Dichlorophenoxyacetic Acid (2,4-D)		6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc			
6.8E-02 h	1.1E-03 r	6.8E-02 r	1 0.10	7.7E-03	78-87-5	1,2-Dichloropropane	6.8E-01 ca*	1.5E+00 ca*	9.9E-02 ca*	1.6E-01 ca*			

FOR PLANNING PURPOSES												
TOXICITY VALUES				SOIL FACTORS				CONTAMINANT				
Key	RIS	h=HEAST	e=ECAO	x=METHDRAWN	r=ROUTE EXTRAPOLATION	ca=CANCER PRG	nc=NONCANCER PRG	sat=Soil SATURATION	max=CEILING LIMIT	*where: nc < 10X ca	**where: nc < 10X ca	
1/(mg/kg-d) 1/(mg/kg-d)	RfD mg/kg-d	SFI mg/kg-d	RD _i mg/kg-d	V _o mg/kg-d	V _f mg/kg-d	C _o mg/kg-d	C _f mg/kg-d	C _{ABS} mg/kg-d	CAS No.	Residential Soil (mg/kg)	Industrial Soil (mg/kg)	
1.8E-01 h	3.0E-04 i	1.3E-01 h	5.7E-03 i	1	0.10	1.2E+04	542-75-6	1,3-Dichloropropene	5.1E-01 ca*	1.2E+00 ca	5.2E-02 ca	
2.9E-01 i	5.0E-04 i	2.9E-01 r	1.4E-04 i	0	0.10	616-23-9	2,3-Dichloropropanol	Dichlorvos	2.0E+02 nc	2.0E+03 nc	1.1E+01 nc	
4.4E-01 x	4.4E-01 r	3.0E-02 h	5.7E-05 h	1	0.10	62-73-7	Dicofol	Dicyclopentadiene	1.5E+00 ca**	6.6E+00 ca*	2.3E-02 ca*	
1.6E+01 i	5.0E-06 i	1.6E+01 i	5.0E-05 r	0	0.10	60-57-1	Dieldrin	Dihethylene glycol, monobutyl ether	1.0E+00 ca	4.3E+00 ca	1.5E-02 ca	
5.7E-03 h	5.7E-03 x	5.7E-03 x	5.7E-03 x	0	0.10	112-34-5	Dihethylene glycol, monoethyl ether	Diethylene glycol, monoethyl ether	2.8E-02 ca*	1.2E-01 ca	1.5E-01 ca	
2.0E+00 h	2.0E+00 r		2.0E+00 r	0	0.10	111-90-0	Diethylformamide	Diethylformamide	7.2E+02 nc	7.5E+03 nc	4.0E+01 nc	
1.1E-02 h	1.1E-02 r		1.1E-02 r	0	0.10	617-34-5	Di(2-ethylhexyl)adipate	Di(2-ethylhexyl)adipate	3.7E+02 nc	1.6E+03 nc	5.6E+00 nc	
1.2E-03 i	6.0E-01 i	1.2E-03 r	6.0E-01 r	0	0.10	103-23-1	Diethyl phthalate	Diethyl phthalate	5.2E+04 nc	1.0E+05 max	2.9E+03 nc	
8.0E-01 i	8.0E-01 r		8.0E-01 r	0	0.10	84-68-2	Diethylstilbestrol	Diethylstilbestrol	9.5E-05 ca	4.1E-04 ca	1.4E-06 ca	
4.7E+03 h	4.7E+03 r		8.0E-02 i	0	0.10	56-53-1	Diisopropl methylphosphonate	Diisopropyl methylphosphonate	5.2E+03 nc	5.5E+04 nc	2.9E+02 nc	
2.0E-02 i	2.0E-02 r		2.0E-02 r	0	0.10	4322-48-6	Difenoquat (Avenge)	Difenoquat (Avenge)	1.3E+03 nc	1.4E+04 nc	2.9E+03 nc	
						35367-38-5	Difubenzuron	Difubenzuron				
1.1E+01 r	1.1E+01 i	1.1E+01 i	1.1E+01 i	1	0.10	75-37-6	1,1-Difluoroethane	1,1-Difluoroethane				
8.0E-02 i	8.0E-02 r		8.0E-02 r	0	0.10	1445-75-6	Dimethipin	Dimethipin	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	
2.0E-02 i	2.0E-02 r		2.0E-02 r	0	0.10	55290-64-7	Dimethoate	Dimethoate	1.3E+01 nc	1.4E+02 nc	7.3E+00 nc	
2.0E-04 i	2.0E-04 r		2.0E-04 r	0	0.10	60-51-5	3,3'-Dimethoxybenzidine	3,3'-Dimethoxybenzidine	3.2E+01 ca	1.4E+02 ca	4.8E+01 ca	
1.4E-02 h	1.4E-02 r		1.4E-02 r	0	0.10	119-90-4	Dimethylamine	Dimethylamine	6.2E-02 nc	2.3E-01 nc	2.1E-02 nc	
5.7E-06 r	5.7E-06 x	5.7E-06 x	8.4E+03	1	0.10	124-40-3	Dimethylbenzidine	Dimethylbenzidine	1.3E+02 nc	1.4E+03 nc	2.9E+03 nc	
2.0E-03 i		2.0E-03 r	0	0.10	121-69-7	N-N-Dimethylaniline	N-N-Dimethylaniline	5.9E-01 ca	2.5E+00 ca	9.0E-03 ca	7.3E+02 nc	
7.5E-01 h		7.5E-01 r	0	0.10	95-68-1	2,4-Dimethylaniline	2,4-Dimethylaniline	7.7E-01 ca	3.3E+00 ca	1.2E-02 ca	1.2E-01 ca	
5.8E-01 h		5.8E-01 r	0	0.10	21436-96-4	2,4-Dimethylbenzidine	2,4-Dimethylbenzidine	4.8E-02 ca	2.1E-01 ca	7.3E-04 ca	7.3E-03 ca	
9.2E+00 h		9.2E+00 r	0	0.10	119-93-7	3,3'-Dimethylbenzidine	3,3'-Dimethylbenzidine	1.7E-01 ca	7.3E-01 ca	1.9E-03 ca	2.6E-02 ca	
2.6E+00 x		3.5E+00 x			57-14-7	1,1-Dimethylhydrazine	1,1-Dimethylhydrazine	1.2E-02 ca	5.2E-02 ca	1.8E-04 ca	1.8E-03 ca	
3.7E+01 x		3.7E+01 x			540-73-8	1,2-Dimethylhydrazine	1,2-Dimethylhydrazine	6.5E+03 nc	6.8E+04 nc	3.1E+01 nc	3.7E+03 nc	
1.0E-01 h	1.0E-01 r		1.0E+01 r	0	0.10	68-12-2	N,N-Dimethylformamide	N,N-Dimethylformamide	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc
2.0E-02 i	2.0E-02 r		2.0E-02 r	0	0.10	105-67-9	2,4-Dimethylphenol	2,4-Dimethylphenol	3.9E+02 nc	4.1E+02 nc	2.2E+00 nc	2.2E+01 nc
6.0E-04 i	6.0E-04 r		6.0E-04 r	0	0.10	57-62-1	2,6-Dimethylphenol	2,6-Dimethylphenol	6.5E+00 nc	6.8E+01 nc	3.7E-01 nc	3.7E+00 nc
1.0E-03 i	1.0E-03 r		1.0E-03 r	0	0.10	95-65-8	3,4-Dimethylphenol	3,4-Dimethylphenol	4.0E-04 r	1.0E+05 max	1.0E+05 max	1.0E+05 max
4.0E-04 h	4.0E-04 r		4.0E-04 r	0	0.10	528-29-0	1,2-Dinitrobenzene	1,2-Dinitrobenzene	2.6E+01 nc	2.7E+02 nc	1.5E+00 nc	1.5E+01 nc
4.0E-04 h	4.0E-04 r		4.0E-04 r	0	0.10	100-25-4	1,4-Dinitrobenzene	1,4-Dinitrobenzene	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc
2.0E-03 i	2.0E-03 r		2.0E-03 r	0	0.10	51-28-5	2,4-Dinitrophenol	2,4-Dinitrophenol	6.5E-01 ca	2.8E+00 ca	9.9E-03 ca	9.9E-02 ca
6.8E-01 i	6.8E-01 r		2.0E-03 r	0	0.10	23321-14-6	Dinitrotoluene mixture	Dinitrotoluene mixture	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc
						121-14-2	2,4-Dinitrotoluene (also see Dinitrotoluene mixture)					

FOR PLANNING PURPOSES

TOXICITY VALUES										SOIL FACTORS			CONTAMINANT			PRELIMINARY REMEDIAL GOALS (PRGs)			
Key	i	RIS	h=HEALTH	e=EOAO	x=MTHDRAWN	r=ROUTE EXTRAPOLATION	ca=CANCER PRG	nc=NONGCANCER PRG	sat=SATURATION	max=CEILING	min=LIMIT	(where: nc < 100x ca)	** (where: nc > 100x ca)	Industrial Soil (mg/kg)	Ambient Air (ug/m ³)	Tap Water (ug/l)			
SF _o	R _{D0}	SFI	R _{D1}	O _{skin}	V _F	C _{AB5}	(mg/kg-d)	(mg/kg-d)	(mg/kg-d)	(mg/kg-d)	(mg/kg-d)	(mg/kg-d)	CAS No.	Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m ³)	Tap Water (ug/l)		
T/(mg/kg-d)																			
1.0E-03	h		1.0E-03	r	0	0.10			606-20-2	2,6-Dinitrotoluene (also see Dinitrotoluene mixture)	6.5E+01	nc	6.8E+02	nc	3.7E+00	nc	3.7E+01	nc	
1.0E-03	i		1.0E-03	r	0	0.10			88-85-7	Dinoseb	6.5E+01	nc	6.8E+02	nc	3.7E+00	nc	3.7E+01	nc	
2.0E-02	h		2.0E-02	r	0	0.10			117-84-0	di-n-Octyl phthalate	1.3E+03	nc	1.4E+04	nc	7.3E+01	nc	7.3E+02	nc	
1.1E-02	i		1.1E-02	r	1	0.10	3.6E+04	123-91-1	1,4-Dioxane	1.4E+01	ca	3.7E+01	ca	6.1E-01	ca	1.0E+00	ca		
3.0E-02	i		3.0E-02	r	0	0.10			957-51-7	Diphenamid	2.0E+03	nc	2.0E+04	nc	1.1E+02	nc	1.1E+03	nc	
2.5E-02	i		2.5E-02	r	0	0.10			122-39-4	Diphenylamine	1.6E+03	nc	1.7E+04	nc	9.1E+01	nc	9.1E+02	nc	
8.0E-01	i		7.7E-01	i	0	0.10			122-66-7	1,2-Diphenylhydrazine	5.6E-01	ca	2.4E+00	ca	8.7E-03	ca	8.4E-02	ca	
2.2E-03	i		2.2E-03	i					85-00-7	Diquat	1.4E+02	nc	1.5E+03	nc	8.0E+00	nc	8.0E+01	nc	
8.5E+00	h		8.6E+00	r					1937-37-7	Direct black 38	5.2E-02	ca	2.2E-01	ca	7.8E-04	ca	7.8E-03	ca	
8.1E+00	h		8.1E+00	r					2602-46-2	Direct blue 6	5.5E-02	ca	2.4E-01	ca	8.3E-04	ca	8.3E-03	ca	
9.3E+00	h		9.3E+00	r					16071-86-6	Direct brown 95	4.8E-02	ca	2.1E-01	ca	7.2E-04	ca	7.2E-03	ca	
4.0E-05	i		4.0E-05	r	0	0.10			298-04-4	Disulfoton	2.6E+00	nc	2.7E+01	nc	1.5E-01	nc	1.5E+00	nc	
1.0E-02	i		1.0E-02	r	0	0.10			505-29-3	1,4-Dithiane	6.5E+02	nc	6.8E+03	nc	3.7E+01	nc	3.7E+02	nc	
2.0E-03	i		2.0E-03	r	0	0.10			330-54-1	Diuron	1.3E+02	nc	1.4E+03	nc	7.3E+00	nc	7.3E+01	nc	
4.0E-03	i		4.0E-03	r	0	0.10			2439-10-3	Dodine	2.6E+02	nc	2.7E+03	nc	1.5E+01	nc	1.5E+02	nc	
5.0E-05	h		5.0E-05	r	0	0.10			115-29-7	Endosulfan	3.3E+00	nc	3.4E+01	nc	1.8E-01	nc	1.8E+00	nc	
2.0E-02	i		2.0E-02	r	0	0.10			145-73-3	Endothall	1.3E+03	nc	1.4E+03	nc	7.3E+01	nc	7.3E+02	nc	
3.0E-04	i		3.0E-04	r	0	0.10			72-20-9	Endrin	2.0E+01	nc	2.0E+02	nc	1.1E+00	nc	1.1E+01	nc	
9.9E-03	i	2.0E-03	h	4.2E-03	i	1	0.10	2.1E-04	106-89-8	Epichlorohydrin	8.6E+00	nc	3.0E+01	nc	1.0E+00	nc	2.0E+00	nc	
5.7E-03	r		5.7E-03	i	0	0.10			106-88-7	1,2-Epoxybutane	3.7E+02	nc	3.9E+03	nc	2.1E+01	nc	2.1E+02	nc	
2.5E-02	i		2.5E-02	r	0	0.10			759-94-4	EPTC (S-Ethyl dipropylthiocarbamate)	1.6E+03	nc	1.7E+04	nc	9.1E+01	nc	9.1E+02	nc	
5.0E-03	i		5.0E-03	r	0	0.10			18672-87-0	Ethephon (2-chloroethyl phosphonic acid)	3.3E+02	nc	3.4E+03	nc	1.8E+01	nc	1.8E+02	nc	
5.0E-04	i		5.0E-04	r	0	0.10			563-12-2	Ethion	3.3E+01	nc	3.4E+02	nc	1.8E+00	nc	1.8E+01	nc	
4.0E-01	h		4.0E-01	r	0	0.10			110-80-5	2-Ethoxyethanol	2.6E+04	nc	3.0E+05	max	2.1E+01	nc	1.5E+04	nc	
3.0E-01	h		3.0E-01	r	0	0.10			111-15-9	2-Ethoxyethanol acetate	2.0E+04	nc	1.0E+05	max	1.1E+03	nc	1.1E+04	nc	
9.0E-01	i		9.0E-01	r	0	0.10			141-78-6	Ethyl acetate	5.9E+04	nc	1.0E+05	max	3.3E+03	nc	3.3E+04	nc	
4.8E-02	h		4.8E-02	r	1	0.10	3.5E+03	140-88-5	4.6E-01	ca	1.0E+00	ca	1.4E-01	ca	2.3E-01	ca	2.3E-01	ca	
1.0E-01	i		2.9E-01	i	1	0.10	1.1E+04	101-41-4	6.9E+02	sat	6.9E+02	sat	1.1E+03	nc	1.3E+03	nc			
3.0E-01	h		3.0E-01	r	0	0.10			108-78-4	Ethylene cyanohydrin	2.0E+04	nc	1.0E+05	max	1.1E+03	nc	1.1E+04	nc	
2.0E-02	h		2.0E-02	r	0	0.10			107-15-3	Ethylene diamine	1.3E+03	nc	1.4E+04	nc	7.3E+01	nc	7.3E+02	nc	
2.0E+00	i		2.0E+00	r	0	0.10			107-21-1	Ethylene glycol	1.3E+05	nc	1.0E+05	max	7.3E+03	nc	7.3E+04	nc	
5.7E-03	r		5.7E-03	h	5.7E-03	i	0	0.10	111-76-2	Ethylene glycol, monobutyl ether	3.7E+02	nc	3.9E+03	nc	2.1E+01	nc	2.1E+02	nc	
1.0E-00	h		3.5E-01	h	3.0E-01	r	1	0.10	8.9E+03	75-21-8	1.2E-01	ca	3.0E-01	ca	1.9E-02	ca	2.4E-02	ca	
6.0E-01	h		8.0E-05	i	6.0E-01	r	8.0E-05	r	96-45-7	Ethyleneglycolurea (ETU)	7.4E-01	ca**	3.2E+00	ca*	1.1E-02	ca*	1.1E-01	ca*	
2.0E-02	e		2.0E-02	e	2.9E+00	i	1	0.10	1.9E+03	75-00-3	Ethyl chloride	1.1E+03	nc	2.7E+03	sat	1.0E+04	nc	7.1E+02	nc
2.0E-01	i		2.0E-01	r	2.0E-01	r	1	0.10	7.3E+04	70-29-7	Ethyl ether	3.8E+03	sat	3.8E+03	sat	7.3E+02	nc	1.2E+03	nc
9.0E-02	h		9.0E-02	h	9.0E-02	r	1	0.10	3.5E+03	97-63-2	Ethyl methacrylate	3.8E+02	sat	3.8E+02	sat	3.3E+02	nc	5.5E+02	nc
1.0E-05	i		1.0E-05	i	1.0E-05	r	0	0.10	2104-84-5	Ethyl p-nitrophenyl phenylphosphorothioate	6.5E-01	nc	6.8E+00	nc	3.7E-02	nc	3.7E-01	nc	
3.0E+00	i		3.0E+00	i	3.0E+00	r	0	0.10	84-72-0	Ethylphthalyl ethyl glycolate	1.0E+05	max	1.0E+05	max	1.1E+04	nc	1.1E+05	nc	

FOR PLANNING PURPOSES												
TOXICITY VALUES				SOIL FACTORS				CONTAMINANT				
Key:	R=HS	I=RIS	H=ECAO	V	O	Skin	VF	CAS No.	Industrial Soil (mg/kg)	Ambient Air (ug/m ³)	Tap Water (ug/l)	
SFo H(mg/kg, d)	RDo R(mg/kg, d)	SFI 1/m(mg/kg-d)	RfDI 1/m(mg/kg-d)	V C ABS (m ³ /kg)	O C ABS (m ³ /kg)	Skin C ABS (m ³ /kg)	VF C ABS (m ³ /kg)					
8.0E-03 i	8.0E-03 r	8.0E-03 r	8.0E-03 r	0 0.10	101200-48-0	Express		5.2E+02 nc	5.5E+03 nc	2.9E+01 nc	2.9E+02 nc	
2.5E-04 i		2.5E-04 r	2.5E-04 r	0 0.10	222224-92-6	Fenamiphos		1.6E+01 nc	1.7E+02 nc	9.1E-01 nc	9.1E+00 nc	
1.3E-02 i		1.3E-02 r	1.3E-02 r	0 0.10	21-64-17-2	Fluometuron		8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc	
6.0E-02 i		6.0E-02 r	6.0E-02 r	0 0.10	7782-41-4	Fluoride		3.9E+03 nc	4.1E+04 nc	2.2E+02 nc	2.2E+03 nc	
8.0E-02 i		8.0E-02 r	8.0E-02 r	0 0.10	55756-60-4	Fluoridone		5.2E+03 nc	5.5E+04 nc	2.9E+02 nc	2.9E+03 nc	
2.0E-02 i		2.0E-02 r	2.0E-02 r	0 0.10	56425-91-3	Flurprimidol		1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc	
6.0E-02 i		6.0E-02 r	6.0E-02 r	0 0.10	68332-96-5	Flutolanil		3.9E+03 nc	4.1E+04 nc	2.2E+02 nc	2.2E+03 nc	
1.0E-02 i		1.0E-02 r	1.0E-02 r	0 0.10	65408-94-5	Fluvalinate		6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc	
3.5E-03 i	1.0E-01 i	3.5E-03 r	1.0E-01 r	0 0.10	133-07-3	Folpet		1.3E+02 ca*	5.5E+02 ca	1.9E+00 ca	1.9E+01 ca	
1.9E-01 i		1.9E-01 r		0 0.10	72178-02-0	Fomesafen		2.3E+00 ca	1.0E+01 ca	3.5E-01 ca	3.5E-01 ca	
2.0E-03 i		2.0E-03 r	2.0E-03 r	0 0.10	944-22-9	Fonofos		1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc	
1.5E-01 i	4.6E-02 i		4.6E-02 i	0 0.10	50-00-0	Formaldehyde		9.8E+03 nc	1.0E+05 nc	1.5E-01 ca	5.5E+03 nc	
2.0E+00 h			2.0E+00 r	0 0.10	64-18-6	Formic Acid		1.0E+05 max	1.0E+05 max	7.3E+03 nc	7.3E+04 nc	
3.0E+00 i			3.0E+00 r	0 0.10	39148-24-8	Fosetyl-al		1.0E+05 max	1.0E+05 max	1.1E+04 nc	1.1E+05 nc	
1.0E-03 i		1.0E-03 r	1.0E-03 r	0 0.10	110-00-9	Furan		6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc	
3.8E+00 h		3.8E+00 r		0 0.10	67-45-8	Furazolidone		1.2E-01 ca	5.0E-01 ca	1.8E-03 ca	1.8E-02 ca	
3.0E-03 i		3.0E-03 r	1.4E-02 h	0 0.10	98-01-1	Furfural		2.0E+02 nc	2.0E+03 nc	5.2E+01 nc	5.2E+02 nc	
5.0E-01 h		5.0E-01 r		0 0.10	531-82-8	Furium		8.9E-03 ca	3.8E-02 ca	1.3E-04 ca	1.3E-03 ca	
3.0E-02 i		3.0E-02 r		0 0.10	60568-05-0	Furmecyclox		1.5E+01 ca	6.4E+01 ca	2.2E+01 ca	2.2E+00 ca	
4.0E-04 i		4.0E-04 r	4.0E-04 r	0 0.10	77182-82-2	Glufosinate-ammonium		2.6E+01 re	2.7E+02 re	1.5E+00 nc	1.5E+01 nc	
4.0E-04 i		4.0E-04 r		0 0.10	765-34-4	Glycidaldehyde		2.6E+01 re	2.7E+02 re	1.0E+00 nc	1.5E+01 nc	
1.0E-01 i		1.0E-01 r		0 0.10	1071-83-6	Glyphosate		6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc	
5.0E-05 i		5.0E-05 r	5.0E-05 r	0 0.10	69806-40-2	Haloxypot-methyl		3.3E+00 nc	3.4E+01 nc	1.8E-01 nc	1.8E+00 nc	
1.3E-02 i		1.3E-02 r	1.3E-02 r	0 0.10	7927-27-3	Harmony		8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc	
4.5E-00 i	5.0E-04 i	4.6E-00 i	5.0E-04 r	0 0.10	76-44-8	Heptachlor		9.9E-02 ca	4.2E-01 ca	1.5E-03 ca	1.5E-02 ca	
9.1E-00 i	1.3E-05 i	9.1E-00 i	1.3E-05 r	0 0.10	1024-57-3	Heptachlor epoxide		4.9E-02 ca**	2.1E-01 ca*	7.4E-04 ca*	7.4E-03 ca*	
2.0E-03 i		2.0E-03 r		0 0.10	87-82-1	Hexabromobenzene		1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc	
1.6E-00 i	8.0E-04 i	1.6E+00 i	8.0E-04 r	0 0.10	118-74-1	Hexachlorobutadiene		2.8E-01 ca*	1.2E+00 ca	4.2E-03 ca	4.2E-02 ca	
7.8E-02 i	2.0E-04 h	7.7E-02 i	2.0E-04 r	0 0.10	87-68-3	Hexachloropropene		5.7E+00 ca**	2.4E+01 ca*	8.7E-02 ca*	8.6E-01 ca*	
6.3E+00 i		6.3E+00 i		0 0.10	319-84-6	HCH (alpha)		7.1E-02 ca	3.0E-01 ca	1.1E-03 ca	1.1E-02 ca	
1.8E-00 i		1.8E+00 i		0 0.10	319-85-7	HCH (beta)		2.5E-01 ca	1.1E+00 ca	3.7E-03 ca	3.7E-02 ca	
1.3E+00 h	3.0E-04 i	3.0E-04 r	3.0E-04 r	0 0.10	58-89-9	HCH (gamma) Lindane		3.4E-01 ca*	1.5E+00 ca	5.2E-03 ca	5.2E-02 ca	
1.8E+00 i		1.8E+00 i		0 0.10	58-89-9	HCH-technical		2.5E-01 ca	1.1E+00 ca	3.8E-03 ca	3.7E-02 ca	
7.0E-03 i		7.0E-03 i		2.0E-05 h	0 0.10	77-47-4	Hexachlorocyclopentadiene		4.5E+02 nc	4.6E+03 nc	7.3E-02 nc	2.6E+02 nc
6.2E+03 i		4.6E+03 i		0 0.10	19408-74-3	Hexachlorodibenzo-p-dioxin mixture (HxCDD)		7.2E-05 ca	3.1E-04 ca	1.5E-06 ca	1.1E-05 ca	
1.4E-02 i	1.0E-03 i	1.4E-02 i	1.0E-03 r	0 0.10	67-72-1	Hexachloroethane		3.2E+01 ca**	1.4E+02 ca**	4.8E-01 ca**	4.8E+00 ca**	
3.0E-04 i		3.0E-04 i	3.0E-04 r	0 0.10	70-30-4	Hexachlorophene		2.0E+01 nc	2.0E+02 nc	1.1E+00 nc	1.1E+01 nc	
1.1E-01 i	3.0E-03 i	1.1E-01 r	3.0E-03 r	0 0.10	121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine		4.0E+00 ca*	1.7E+01 ca	6.1E-02 ca	6.1E-01 ca	
		2.9E-06 r		0 0.10	822-06-0	1,6-Hexamethylene diisocyanate			1.0E-02 nc	1.0E-01 nc		

FOR PLANNING PURPOSES

TOXICITY VALUES										SOIL FACTORS										CONTAMINANT										PRELIMINARY REMEDIAL GOALS (PRGs)									
Key:	I = RIS	h=HE(S)	e=ECAO	x=MTHDRAWN	r=ROUTE EXTRAPOLATION	ca=CANCER PRG	nc=NONCANCER PRG	sat=SOIL SATURATION	max=CEILING LIMIT	*where: nc < 10x ca	**where: nc < 1box ca	***where: nc < 10x ca	ca=CANCER PRG	nc=NONCANCER PRG	sat=SOIL SATURATION	max=CEILING LIMIT	*where: nc < 10x ca	**where: nc < 1box ca	***where: nc < 10x ca	Industrial Soil (mg/kg)	Residential Soil (mg/kg)	Ambient Air (ug/m ³)	Tap Water (ug/l)																
Sf _o 1/(mg/kg-d)	RfD _o (mg/kg-d)	Sf ₁ (mg/kg-d)	RfD ₁ (mg/kg-d)	1/(mg/kg-d)	C ABS (m ³ /kg)	V O skin	VF C ABS	CAS No.																															
6.0E-02 h		5.7E-02 i	1	0.10	3.5E+03	110-54-3	n-Hexane			2.9E+02	nc	3.4E+02	sat	2.1E+02	nc	3.5E+02	nc	1.2E+03	nc	1.1E-01	nc	1.1E+00	nc	1.1E+00	nc	1.1E+00	nc												
3.3E-02 i		3.3E-02 r	0	0.10	51235-04-2	Hexazinone			2.2E+03	nc	2.2E+04	nc	1.2E+02	nc	1.2E+02	nc	1.2E+03	nc	1.2E+03	nc	1.1E-01	nc	1.1E+00	nc	1.1E+00	nc													
3.0E+00 i		1.7E-01 i		0	0.10	302-01-2	Hydrazine, hydrazine sulfate			1.5E-01	ca	6.4E-01	ca	3.9E-04	ca	2.2E-02	ca	2.2E-02	ca																				
						7647-01-0	Hydrogen chloride														3.7E+01	nc																	
						7783-06-4	Hydrogen sulfide			2.6E+03	nc	2.7E+04	nc	1.0E+00	nc	1.5E+02	nc	1.5E+03	nc	4.7E+01	nc	4.7E+02	nc																
						123-31-9	p-Hydroquinone			8.5E+02	nc	8.9E+03	nc	9.1E+02	nc	9.1E+03	nc	9.1E+03	nc																				
						35554-44-0	Imazalil			1.6E+04	nc	1.0E+05	max	2.7E+04	nc	1.5E+02	nc	1.5E+03	nc																				
						81335-37-7	Imazaquin			2.6E+03	nc	2.0E+04	nc	1.0E+05	max	1.1E+03	nc	1.1E+04	nc																				
						38734-19-7	Iprodione			2.0E+04	nc	2.0E+04	nc	1.0E+05	max	7.1E+00	ca*	7.1E+01	ca																				
						78-33-1	Isobutanol			4.7E+02	ca*	2.0E+03	ca*	9.8E+02	nc	1.0E+04	nc	5.5E+01	nc																				
						78-59-1	Isophorone			6.5E+03	nc	6.8E+04	nc	4.0E+02	nc	3.7E+03	nc	3.7E+03	nc																				
						33820-53-0	Isopropalin			3.3E+03	nc	3.4E+04	nc	1.8E+02	nc	1.8E+03	nc	1.8E+03	nc																				
						1832-54-8	Isopropyl methyl phosphonic acid			2.5E-02	ca	1.1E-01	ca	1.1E+03	nc	3.7E-04	ca	3.7E-03	ca																				
						82558-50-7	Isoxaben			143-50-0		143-50-0		1.3E+02	nc	1.4E+03	nc	7.3E+00	nc																				
						1.8E+01 e	Kepone			77501-53-4	Lactofen			4.0E+02	nc	1.0E+03	nc	4.0E+00	nc																				
						2.0E-03 i	2.0E-03 r	0	0.10	7439-92-1	Lead			1.3E+02	nc	6.5E+03	nc	3.7E+00	nc																				
						0	NA			78-00-2	Lead (tetraethyl)			6.5E-03	nc	6.8E-02	nc	7.3E+00	nc																				
						0	0.10			1.0E-07 i				1.3E+02	nc	1.4E+03	nc	7.3E+01	nc																				
						2.0E-03 i	2.0E-03 r	0	0.10	330-55-2	Linuron			1.5E+03	nc	3.4E+04	nc	7.3E+02	nc																				
						0	0.01			7439-93-2	Lithium			1.3E+04	nc	1.0E+05	max	7.3E+02	nc																				
						2.0E-01 r	0	0.10		83055-99-6	Londax			1.3E+03	nc	1.4E+04	nc	7.3E+01	nc																				
						2.0E-01 i	2.0E-01 r	0	0.10	121-75-5	Malathion			6.5E+03	nc	6.8E+04	nc	3.7E+02	nc																				
						2.0E-02 r	0	0.10		2.0E-02 i	Maleic anhydride			3.3E+04	nc	1.0E+05	max	1.8E+03	nc																				
						1.0E-01 r	0	0.10		108-31-6	Maleic hydrazide			1.3E+00	nc	1.4E+01	nc	7.3E-02	nc																				
						5.0E-01 r	0	0.10		123-33-1	Malononitrile			2.0E+03	nc	2.0E+04	nc	1.1E+03	nc																				
						2.0E-05 h	2.0E-05 r	0	0.10	109-77-3	Marcozeb			3.0E+02	nc	3.4E+03	nc	1.8E+01	nc																				
						3.0E-02 r	0	0.10		8018-01-7	Mareeb			3.8E+02	nc	7.8E+03	nc	5.1E-02	nc																				
						5.0E-03 r	5.0E-03 r	0	0.10	12427-38-2	Manganese and compounds			5.9E+00	nc	6.1E+01	nc	3.3E-01	nc																				
						1.4E-03 i	1.4E-05 r	0	0.01	7438-96-5	Mephosfolan			2.0E+03	nc	2.0E+04	nc	1.1E+02	nc																				
						9.0E-05 h	9.0E-05 r	0	0.10	950-10-7	Mepiquat			2.3E-01	nc	5.1E+02	nc	1.1E+01	nc																				
						3.0E-02 r	3.0E-02 r	0	0.10	24307-26-4	Mercuric chloride			0	0.01	7439-97-6	Mercury (elemental)			3.1E-01	nc																		
						8.6E-05 i	8.6E-05 i	0	NA	7439-97-6	Mercury (methyl)			6.5E+00	nc	6.8E+01	nc	3.7E+00	nc																				
						1.0E-04 i	1.0E-04 i	0	0.10	22967-92-6	Mephos			2.0E+00	nc	2.0E+01	nc	1.1E+00	nc																				
						3.0E-05 i	3.0E-05 r	0	0.10	150-50-5	Mephos oxide			2.0E+00	nc	2.0E+01	nc	1.1E+00	nc																				
						3.0E-05 i	3.0E-05 r	0	0.10	78-48-8	Metalaxy			3.9E+03	nc	4.1E+04	nc	2.2E+02	nc																				
						6.0E-02 i	6.0E-02 r	0	0.10	57837-19-1	Methacrylonitrile			1.3E+00	nc	5.1E+00	nc	7.3E-01	nc																				
						1.0E-04 i	1.0E-04 i	0	0.10	5.4E+03	126-98-7			3.3E+00	nc	3.4E+01	nc	1.8E+00	nc																				
						5.0E-05 i	5.0E-05 r	0	0.10	10265-92-6	Methamidophos																												

FOR PLANNING PURPOSES												
Key	TOXICITY VALUES			SOIL FACTORS			CONTAMINANT			PRELIMINARY REMEDIAL GOALS (PRGs)		
	SF ₀ 1/(mg/kg-d) SF ₁	RDo 1/(mg/kg-d)	SFI 1/(mg/kg-d)	RD ₁ O skin C ABS (mg/kg)	V O skin VF C ABS (mg/kg)	CAS No.	Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m ³)	Tap Water (ug/l)		
5.0E-01 i	5.0E-01 r	0 0.10	67-56-1	Methanol	3.3E+04 nc	1.0E+05 max	1.8E+03 nc	1.8E+04 nc				
1.0E-03 i	1.0E-03 r	0 0.10	950-37-8	Methidathion	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc				
2.5E-02 i	2.5E-02 r	0 0.10	16752-77-5	Methomyl	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc				
5.0E-03 i	5.0E-03 r	0 0.10	72-43-5	Methoxychlor	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc				
1.0E-03 h		5.7E-03 i	0 0.10	2-Methoxyethanol	6.5E+01 nc	6.8E+02 nc	2.1E+01 nc	3.7E+01 nc				
2.0E-03 h		2.0E-03 r	0 0.10	2-Methoxyethanol acetate	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc				
4.6E-02 h	4.6E-02 r	0 0.10	110-49-6	2-Methoxy-5-nitroaniline	9.7E+00 ca	4.1E+01 ca	1.5E+01 ca	1.5E+00 ca				
			99-59-2	2-Methoxy-5-nitroaniline	2.0E+04 nc	8.4E+04 nc	3.7E+03 nc	6.1E+03 nc				
1.0E+00 h		1.0E+00 r	1 0.10	1,9E+04 79-20-9	Methyl acetate	1.5E+02 nc	5.2E+02 nc	1.1E+02 nc	1.8E+02 nc			
3.0E-02 h		3.0E-02 r	1 0.10	3.5E+03 96-33-3	Methyl acrylate	1.9E+00 ca	7.9E+00 ca	2.8E-02 ca	2.8E-01 ca			
2.4E-01 h		2.4E-01 r	0 0.10	100-61-8	2-Methylaniline (o-toluidine)	2.5E+00 ca	1.1E+01 ca	3.7E-02 ca	3.7E-01 ca			
1.8E-01 h		1.8E-01 r	0 0.10	636-21-5	2-Methylaniline hydrochloride	6.5E+04 nc	1.0E+05 max	3.7E+03 nc	3.7E+04 nc			
1.0E+00 x		1.0E+00 r	0 0.10	79-22-1	Methyl chlorocarbonate	3.3E+01 nc	3.4E+02 nc	1.8E+00 nc	1.8E+01 nc			
5.0E-04 i		5.0E-04 r	0 0.10	94-74-6	2-Methyl-4-chlorophenoxyacetic acid	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc			
1.0E-02 i		1.0E-02 r	0 0.10	94-81-5	4-(2-Methyl-4-chlorophenoxy) butyric acid	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc			
1.0E-03 i		1.0E-03 r	0 0.10	93-65-2	2-(2-Methyl-4-chlorophenoxy) propionic acid	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc			
1.0E-03 i		1.0E-03 r	0 0.10	16484-77-8	2-(2-Methyl-1,4-chlorophenoxy) propionic acid	5.6E+04 nc	1.0E+05 max	3.1E+03 nc	3.1E+04 nc			
8.6E-01 r		8.6E-01 h	0 0.10	108-87-2	Methylcyclohexane	3.7E-01 nc	3.9E+00 nc	2.1E-02 nc	2.1E-01 nc			
5.7E-06 r		5.7E-06 h	0 0.10	101-68-8	4,4'-Methylenediphenyl isocyanate	1.8E+00 ca	7.6E+00 ca	2.7E-02 ca	2.7E-01 ca			
2.5E-01 h		2.5E-01 r	0 0.10	101-77-9	4,4'-Methylenebisbenzeneamine	3.4E+00 ca*	1.5E+01 ca*	5.2E-02 ca*	5.2E-01 ca*			
1.3E-01 h	1.3E-01 h	7.0E-04 r	0 0.10	101-14-4	4,4'-Methylene bis(2-chloroaniline)	9.7E+00 ca	4.1E+01 ca	1.5E-01 ca	1.5E+00 ca			
4.6E-02 i		4.6E-02 r	0 0.10	101-61-1	4,4'-Methylene bis(N,N'-dimethyl)aniline	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc			
1.0E-02 h		1.0E-02 r	0 0.10	74-95-3	Methylene bromide	1.1E+01 ca	2.5E+01 ca	4.1E+00 ca	4.3E+00 ca			
7.5E-03 i	6.0E-02 i	1.6E-03 l	8.6E-01 h	1 0.10	3.3E+03 75-09-2	Methylene chloride	5.7E-06 i	0 NA	2.1E-02 ca	2.1E-02 ca		
				101-68-8	4,4'-Methylene diphenyl isocyanate	8.7E+03 nc	3.4E+04 nc	1.0E+03 nc	1.9E+03 nc			
6.0E-01 i		2.9E-01 i	1 0.10	2.5E+04 78-93-3	Methyl ethyl ketone	4.0E-01 ca	1.7E+00 ca	6.1E-03 ca	6.1E-02 ca			
1.1E+00 h	1.1E+00 r		0 0.10	60-34-4	Methyl hydrazine	5.2E+03 nc	5.4E+04 nc	8.3E+01 nc	2.9E+03 nc			
8.0E-02 h		2.3E-02 h	0 0.10	108-10-1	Methyl isobutyl ketone	5.2E+03 nc	5.5E+04 nc	2.9E+02 nc	2.9E+03 nc			
8.0E-02 h		8.0E-02 r	0 0.10	80-52-6	Methyl methacrylate	1.3E+01 ca	5.8E+01 ca	2.0E-01 ca	2.0E+00 ca			
3.3E-02 h	3.3E-02 r	2.5E-04 r	0 0.10	99-55-8	2-Methyl-5-nitroaniline	1.6E+01 nc	1.7E+02 nc	9.1E-01 nc	9.1E+00 nc			
2.5E-04 i		2.5E-04 r	0 0.10	298-00-0	Methyl parathion	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc			
5.0E-02 x		5.0E-02 r	0 0.10	95-48-7	2-Methylphenol	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc			
5.0E-02 x		5.0E-02 r	0 0.10	108-39-4	3-Methylphenol	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc			
5.0E-03 h		5.0E-03 r	0 0.10	106-44-5	4-Methylphenol	2.2E+02 nc	1.2E+03 nc	4.2E+01 nc	6.0E+01 nc			
6.0E-03 h		1.1E-02 h	1 0.10	260-13-15-4	Methyl styrene (mixture)	1.8E+03 nc	8.1E+03 nc	2.6E+02 nc	4.3E+02 nc			
7.0E-02 h		7.0E-02 r	1 0.10	2.7E+04 98-53-9	Methyl styrene (alpha)	3.3E+02 nc	3.4E+03 nc	3.1E+03 nc	1.8E+02 nc			
5.0E-03 e		8.6E-01 i	0 0.10	163-04-4	Methyl tertbutyl ether (MTBE)	9.8E+03 nc	1.0E+05 max	5.5E+02 nc	5.5E+03 nc			
1.5E-01 i		1.5E-01 r	0 0.10	512-18-45-2	Metolachlor (Dual)	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc			
2.5E-02 i		2.5E-02 r	0 0.10	21087-64-9	Metribuzin	2.5E-01 ca*	1.1E+00 ca	3.7E-03 ca	3.7E-02 ca			
1.8E+00 h	2.0E-04 i	1.8E+00 r	2.0E-04 r	2385-85-5	Mirex							

Key: I=IRIS h=HEAST e=ECAO x=METHDRAWN r=ROUTE EXTRAPOLATION ca=CANCER PRG sa=NONCANCER PRG sa=OIL SATURATION max=CEILING LIMIT *where: nc < 100x sa **where: nc < 10X sa

FOR PLANNING PURPOSES

TOXICITY VALUES										SOIL FACTORS										CONTAMINANT										PRELIMINARY REMEDIAL GOALS (PRGs)									
Key:	= RIS	= HEAST	= ECAO	= WTHDRAWN	= ROUTE EXTRAPOLATION	ca=CANCER PRG	nc=NONCANCER PRG	sat=SOIL SATURATION	max=CEILING LIMIT	*where: nc < 10X ca	**where: nc < 100X ca	Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m ³)	Tap Water (ug/l)	Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m ³)	Tap Water (ug/l)	Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m ³)	Tap Water (ug/l)																
SF ₀ 1/(mg/kg-d) 1/(mg/kg-d)	RfDo RfD ₀ (mg/kg-d)	SF ₁ 1/(mg/kg-d) 1/(mg/kg-d)	RfDI RfD ₁ (mg/kg-d)	V O skin C ABS (mg/kg)	V O skin C ABS (mg/kg)	CAS No.																																	
2.0E-03 i	2.0E-03 r	0.010	2242-67-1	Molinate	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc																															
5.0E-03 h	0.001	7439-98-7	Molybdenum	3.8E+02 nc	8.5E+03 nc	1.8E+02 nc	1.8E+02 nc																																
1.0E-01 h	1.0E-01 h	0.010	10599-90-3	Monochloramine	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc																															
2.0E-03 i	2.0E-03 r	0.010	300-76-5	Naled	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc																															
1.0E-01 i	1.0E-01 r	0.010	15298-98-7	Napropamide	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc																															
2.0E-02 i	0.001	7440-02-0	Nickel (soluble salts)	1.5E+03 nc	3.4E+04 nc	7.3E+02 nc	7.3E+02 nc																																
			"CAL-Modified PRG"	(PEA, 1994)	1.5E+02																																		
			8.4E-01 i	na	Nickel refinery dust																																		
			1.7E+00 i	0.001	Nickel subsulfide	1.1E+04 ca	4.0E+03 ca																																
1.5E-03 x	1.5E-03 r	0.001	1929-82-4	Nitrapyrin	9.8E+01 nc	1.0E+03 nc	5.5E+00 nc	5.5E+01 nc																															
1.6E+00 i	1.6E+00 i	0.010	14797-55-8	Nitrate	1.0E+05 max	1.0E+05 max																																	
1.0E-01 x	1.0E-01 i	0.010	10102-43-9	Nitric Oxide	6.5E+03 nc	1.0E+05 max																																	
1.0E-01 i	1.0E-01 r	0.010	14797-65-0	Nitrite	6.5E+03 nc	1.0E+05 max																																	
6.0E-05 r	5.7E-05 h	0.010	88-74-4	2-Nitroaniline	3.9E+00 nc	4.1E+01 nc	2.1E-01 nc	2.2E+00 nc																															
			99-09-2	3-Nitroaniline																																			
			100-01-6	4-Nitroaniline	3.3E+01 nc	3.4E+02 nc	2.1E+00 nc	2.1E+01 nc																															
5.0E-04 i	5.7E-04 h	0.010	98-95-3	Nitrobenzene	4.6E+03 nc	4.8E+04 nc	2.6E+02 nc	2.6E+03 nc																															
7.0E-02 h	7.0E-02 r	0.010	67-20-9	Nitrofurantoin	3.0E-01 ca	1.3E+00 ca	7.2E-04 ca	4.5E-02 ca																															
1.5E+00 h	9.4E+00 h	0.010	59-87-0	Nitrofurazone																																			
	1.0E+00 x	1.0E+00 r	0.010	10102-44-0	Nitrogen dioxide	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc																														
1.0E-01 i	1.0E-01 r	0.010	556-88-7	Nitroguanidine																																			
			100-02-7	4-NitrophenoI																																			
			79-46-9	2-Nitropropane																																			
9.4E+00 r	5.7E-03 r	9.4E+00 h	5.7E-03 i	1.010	92-4-16-3	N-Nitrosodi-n-butylamine	8.2E-02 ca	3.5E-01 ca	7.2E-04 ca	3.5E+01 ca																													
5.4E+00 i	5.6E+00 i	0.010	0.010	1116-54-7	N-Nitrosodiethanolamine	1.6E-01 ca	6.8E-01 ca	2.4E-03 ca	2.4E-02 ca																														
2.8E+00 i	2.8E+00 r	0.010	0.010	55-18-5	N-Nitrosodiethylamine	3.0E-03 ca	1.3E-02 ca	4.5E-05 ca	4.5E-04 ca																														
1.5E+02 i	1.5E+02 r	0.010	0.010	62-75-9	N-Nitrosodimethylamine	8.7E-03 ca	3.7E-02 ca	1.4E-04 ca	1.3E-03 ca																														
5.1E+01 i	4.9E+01 i	0.010	0.010	86-30-6	N-Nitrosodiphenylamine	9.1E+01 ca	3.9E+02 ca	1.4E+00 ca	1.4E+01 ca																														
4.9E-03 i	4.9E-03 r	0.010	0.010	621-64-7	N-Nitroso di-n-propylamine	6.3E-02 ca	2.7E-01 ca	9.6E-04 ca	9.6E-03 ca																														
7.0E+00 i	7.0E+00 r	0.010	0.010	10535-95-6	N-Nitroso-N-methyl ethylamine	2.0E-02 ca	8.7E-02 ca	3.1E-04 ca	3.1E-03 ca																														
2.2E+01 i	2.2E+01 r	0.010	0.010	930-55-2	N-Nitrosopyrrolidine	2.1E-01 ca	9.1E-01 ca	3.1E-03 ca	3.2E-02 ca																														
2.1E+00 i	2.1E+00 r	0.010	0.010	98-08-1	m-Nitrotoluene	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc																														
1.0E-02 h	1.0E-02 r	0.010	0.010	98-99-0	p-Nitrotoluene	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc																														
4.0E-02 i	4.0E-02 r	0.010	0.010	273-14-13-2	Norfurazon	4.6E+01 nc	4.8E+02 nc	2.6E+00 nc	2.6E+01 nc																														
7.0E-04 i	7.0E-04 r	0.010	0.010	885509-19-9	NuStar	2.0E+02 nc	2.0E+03 nc	1.1E+01 nc	1.1E+02 nc																														
3.0E-03 i	3.0E-03 r	0.010	0.010	32536-52-0	Octabromodiphenyl ether	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc																														
5.0E-02 i	5.0E-02 r	0.010	0.010	269-141-0	Octahydro-1357-tetranitro-1357-tetrazocine (HMX)	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc																														
2.0E-03 h	2.0E-03 r	0.010	0.010	152-16-9	Octamethylpyrophosphoramide	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc																														
5.0E-02 i	5.0E-02 r	0.010	0.010	19044-48-3	Oryzalin																																		

FOR PLANNING PURPOSES

Key	F=RIS h=HEAST	e=ECAO x=WITHDRAWN F=ROUTE EXTRAPOLATION	ca=CANCER PRG nc=NONCANCER PRG sat=SATURATION	soi=SATURATED max=CEILING LIMIT	PRELIMINARY REMEDIAL GOALS (PRGs)										
					CONTAMINANT					Residential Soil (mg/kg)		Industrial Soil (mg/kg)		Ambient Air (ug/m ³)	Tap Water (ug/l)
TOXICITY VALUES		SOIL FACTORS					V	V	V	CAS No.					
SF ₀ 1/(mg/kg-d) h	RDo 1/(mg/kg-d) i	SFI 1/(mg/kg-d) i	RDI 1/(mg/kg-d) i	RFI 1/(mg/kg-d) i	V skin C ABS (mg/kg)	V skin C ABS (mg/kg)	V skin C ABS (mg/kg)	C ABS (mg/kg)							
5.0E-03 i	5.0E-03 r	0.10	19686-30-9	Oxadiazon	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc							
2.5E-02 i	2.5E-02 r	0.10	23135-22-0	Oxamyl	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc							
3.0E-03 i	3.0E-03 r	0.10	42874-03-3	Oxyfluorfen	2.0E+02 nc	2.0E+03 nc	1.1E+01 nc	1.1E+02 nc							
1.3E-02 i	1.3E-02 r	0.10	76738-62-0	Paclobutrazol	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc							
4.5E-03 i	4.5E-03 r	0.10	4685-14-7	Paraquat	2.9E+02 nc	3.1E+03 nc	1.6E+01 nc	1.6E+02 nc							
6.0E-03 h	6.0E-03 r	0.10	56-38-2	Parathion	3.9E+02 nc	4.1E+03 nc	2.2E+01 nc	2.2E+02 nc							
5.0E-02 h	5.0E-02 r	0.10	11147-12-2	Pebulate	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc							
4.0E-02 i	4.0E-02 r	0.10	40487-42-1	Pendimethalin	2.6E+03 nc	2.7E+04 nc	1.5E+02 nc	1.5E+03 nc							
2.3E-02 h	2.3E-02 r	0.10	87-84-3	Pentabromo-6-chloro cyclohexane	1.9E+01 ca	8.3E+01 ca	2.9E+00 ca	2.9E+00 ca							
2.0E-03 i	2.0E-03 r	0.10	1163-19-5	Pentabromodiphenyl ether	1.3E+02 nc	1.4E+03 nc	7.3E+00 ne	7.3E+01 nc							
8.0E-04 i	8.0E-04 r	0.10	608-93-5	Pentachlorobenzene	5.2E+01 nc	5.5E+02 nc	2.9E+00 ne	2.9E+01 nc							
2.6E-01 h	3.0E-03 i	2.6E-01 r	3.0E-03 r	82-68-8	Pentachloronitrobenzene	1.7E+00 ca*	7.3E+00 ca	2.6E+02 ca	2.6E+02 ca						
1.2E-01 i	3.0E-02 i	1.2E-01 r	3.0E-02 r	87-86-5	Pentachlorophenol	2.5E+00 ca	7.9E+00 ca	5.6E+02 ca	5.6E+02 ca						
5.0E-02 i	5.0E-02 r	0.10	52645-53-1	Permethrin	3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc							
2.5E-01 i	2.5E-01 r	0.10	13684-63-4	Phenmedipham	1.6E+04 nc	1.0E+05 max	9.1E+02 nc	9.1E+03 nc							
6.0E-01 i	6.0E-01 r	0.10	108-95-2	Phenol	3.9E+04 nc	1.0E+05 max	2.6E+03 nc	2.6E+04 nc							
6.0E-03 i	6.0E-03 r	0.10	108-45-2	m-Phenylenediamine	3.9E+02 nc	4.1E+03 nc	2.2E+01 nc	2.2E+02 nc							
1.9E-01 h	1.9E-01 r	0.10	106-50-3	p-Phenylenediamine	1.2E+04 nc	1.0E+05 max	6.9E+02 nc	6.9E+03 nc							
8.0E-05 i	8.0E-05 r	0.10	62-38-4	Phenylmercuric acetate	5.2E+00 nc	5.5E+01 nc	2.9E+01 nc	2.9E+00 nc							
1.9E-03 h	1.9E-03 r	0.10	90-043-7	2-Phenylphenol	2.3E+02 ca	9.8E+02 ca	3.5E+01 ca	3.5E+01 ca							
2.0E-04 h		2.0E-04 r	0.10	288-02-2	Phorate	1.3E+01 nc	1.4E+02 nc	7.3E+00 nc	7.3E+00 nc						
2.0E-02 i		2.0E-02 r	0.10	732-11-6	Phosmet	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc						
3.0E-04 h		3.0E-04 r	0.10	7803-51-2	Phosphine	2.0E+01 nc	2.0E+02 nc	3.1E+01 nc	3.1E+01 nc						
2.0E-05 i		2.0E-05 r	0.10	7723-14-0	Phosphorus (white)			7.3E+02 nc	7.3E+02 nc						
1.0E+00 h		1.0E+00 r	0.10	100-21-0	p-Phthalic acid			3.7E+03 nc	3.7E+03 nc						
2.0E+00 i		3.4E-02 h	0.10	85-44-9	Phthalic anhydride			1.2E+02 nc	1.2E+02 nc						
7.0E-02 i		7.0E-02 r	0.10	1918-02-1	Picloram	4.6E+03 nc	4.8E+04 nc	2.6E+02 nc	2.6E+03 nc						
1.0E-02 i		1.0E-02 r	0.10	23605-41-1	Primiphos-methyl	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc						
8.9E-00 h	8.9E-00 h	8.9E-00 r	7.0E-06 r	0.10	Polybrominated biphenyls (PCBs)	5.0E-02 ca**	7.6E-04 ca*	2.1E-01 ca*	7.6E-03 ca*						
7.7E+00 i		7.7E+00 r		0.06	Polychlorinated biphenyls (PCBs)	6.6E-02 ca*	3.4E-01 ca*	3.4E-01 ca*	8.7E-04 ca*						
7.0E-05 i		7.0E-05 r	0.06	12874-11-2	Aroclor 1016 (see PCBs for cancer endpoint)	4.9E+00 nc	6.5E+01 nc	2.6E+01 nc	2.6E+00 nc						
2.0E-05 i		2.0E-05 r	0.06	11097-89-1	Aroclor 1224 (see PCBs for cancer endpoint)	1.4E+00 nc	1.9E+01 nc	7.3E+01 nc	7.3E+01 nc						
				0.10	Polynuclear aromatic hydrocarbons (PAHs)	3.6E+02 sat	2.2E+02 nc	2.2E+02 nc	3.7E+02 nc						
	6.0E-02 i		6.0E-02 r	1.0E+00	Acenaphthene	1.9E+01 sat	1.9E+01 sat	1.1E+03 nc	1.8E+03 nc						
	3.0E-01 i		3.0E-01 r	1.5E+00	Anthracene	6.1E-01 ca	2.6E+00 ca	9.2E-03 ca	9.2E-02 ca						
7.3E-01 e		7.3E-01 r	0.10	56-55-3	Benz[a]anthracene	6.1E-01 ca	2.6E+00 ca	9.2E-03 ca	9.2E-02 ca						
7.3E-01 e		7.3E-01 r	0.10	205-99-2	Benzofluoranthene	6.1E+00 ca	2.6E+01 ca	9.2E-03 ca	9.2E-02 ca						
7.3E-02 e		7.3E-02 r	0.10	207-08-9	Benzokfloranthene	6.1E-01 ca	2.6E+01 ca	9.2E-03 ca	9.2E-02 ca						
				0.10	"CAL-Modified PRG" (PEA, 1994)	6.1E-01									

FOR PLANNING PURPOSES												
PRELIMINARY REMEDIAL GOALS (PRGs)												
CONTAMINANT												
SOIL FACTORS												
V	skin	Vf	C ABS	C ABS	C ABS	Soil (mg/kg)	Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m ³)	Tap Water (ug/l)		
SfO 1/(mg/kg-d)	RtDo 1/(mg/kg-d)	SfI 1/(mg/kg-d)	RtD 1/(mg/kg-d)	O skin 1/(mg/kg-d)	C	CAS No.						
7.3E+00 i		7.3E+00 r		0	0.10	50-32-8	Benzalpyrene "CAL-Modified PRG" (PEA, 1994)	6.1E-02 ca	2.6E-01 ca	9.2E-04 ca	9.2E-03 ca	
7.3E-03 e		7.3E-03 r		0	0.10	3.8E-07 218-01-9	Chrysene	2.4E+01 sat	2.4E+01 sat	9.2E-01 ca	9.2E+00 ca	
7.3E+00 e		7.3E+00 r		0	0.10	53-70-3	"CAL-Modified PRG" (PEA, 1994)	6.1E+00	6.1E-02 ca	9.2E-04 ca	9.2E-03 ca	
4.0E-02 i		4.0E-02 r		0	0.10	208-44-0	Dibenz[ah]anthracene	2.6E+03 nc	2.7E+04 nc	1.5E+02 nc	1.5E+03 nc	
4.0E-02 i		4.0E-02 r		1	0.10	7.6E+05 86-75-7	Fluoranthene	3.0E+02 sat	3.0E+02 sat	1.5E+02 nc	2.4E+02 nc	
7.3E-01 e		7.3E-01 r		0	0.10	193-59-5	Indeno[1,2,3-cd]pyrene	6.1E-01 ca	2.6E+00 ca	9.2E-03 ca	9.2E-02 ca	
4.0E-02 e		4.0E-02 r		1	0.10	91-20-3	Naphthalene	8.0E+02 sat	8.0E+02 sat	1.5E+02 nc	2.4E+02 nc	
3.0E-02 i		3.0E-02 r		0	0.10	129-00-0	Pyrene	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc	
1.5E-01 i		9.0E-03 i		0	0.10	67747-09-5	Prochloraz	3.0E+00 ca	1.3E+01 ca	4.5E-02 ca	3.3E+02 ca	
6.0E-03 h		6.0E-03 r		0	0.10	26399-36-0	Propifuralin	3.9E+02 nc	4.1E+03 nc	2.2E+01 nc	2.2E+02 nc	
1.5E-02 i		1.5E-02 r		0	0.10	1610-18-0	Prometon	9.8E+02 nc	1.0E+04 nc	5.5E+01 nc	5.5E+02 nc	
4.0E-03 i		4.0E-03 r		0	0.10	7287-19-6	Prometryn	2.6E+02 nc	2.7E+03 nc	1.5E+01 nc	1.5E+02 nc	
7.5E-02 i		7.5E-02 r		0	0.10	23950-58-5	Promamide	4.9E+03 nc	5.1E+04 nc	2.7E+02 nc	2.7E+03 nc	
1.3E-02 i		1.3E-02 r		0	0.10	1918-16-7	Propachlor	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc	
5.0E-03 i		5.0E-03 r		0	0.10	709-98-8	Propanil	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc	
2.0E-02 i		2.0E-02 r		0	0.10	2312-35-8	Propargite	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc	
2.0E-03 i		2.0E-03 r		0	0.10	107-19-7	Propargyl alcohol	1.3E+02 nc	1.4E+03 nc	7.3E+00 nc	7.3E+01 nc	
2.0E-02 i		2.0E-02 r		0	0.10	139-40-2	Propazine	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc	
2.0E-02 i		2.0E-02 r		0	0.10	122-42-9	Propham	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc	
1.3E-02 i		1.3E-02 r		0	0.10	60207-90-1	Propiconazole	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc	
2.0E+01 h		2.0E+01 r		0	0.10	57-55-6	Propylene glycol	1.0E+05 max	1.0E+05 max	7.3E+04 nc	7.3E+05 nc	
7.0E-01 h		7.0E-01 r		0	0.10	111-35-3	Propylene glycol, monoethyl ether	4.6E+04 nc	1.0E+05 max	2.6E+03 nc	2.6E+04 nc	
7.0E-01 h		7.0E-01 r		0	0.10	107-98-2	Propylene glycol, monomethyl ether	4.6E+04 nc	1.0E+05 max	2.1E+03 nc	2.6E+04 nc	
2.4E+01 i		8.6E-03 r	1.3E-02 i	0	0.10	75-56-9	Propylene oxide	81335-77-5 Pursuit	1.6E+04 nc	1.0E+05 max	5.2E-01 ca	
2.5E-01 i		2.5E-01 r	0	0.10	81335-77-5 Pursuit		1.6E+03 nc	1.7E+04 nc	9.1E+02 nc	9.1E+03 nc		
2.5E-02 i		2.5E-02 r	0	0.10	51630-58-1 Pydrin		6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc		
1.0E-03 i		1.0E-03 r	0	0.10	110-86-1 Pyrdine		3.3E+03 nc	3.4E+04 nc	1.8E+00 nc	1.8E+01 nc		
5.0E-04 i		5.0E-04 r	0	0.10	13539-03-8 Quinalphos		2.6E+02 nc	2.7E+03 nc	1.5E+01 nc	1.5E+02 nc		
1.2E+01 h		1.2E+01 r		0	0.10	91-22-5 Quinoline		1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc	
1.1E-01 i		3.0E-03 i	1.1E-01 r	0	0.10	121-82-4 RDX (Cyclonite)		4.0E+00 ca*	1.7E+01 ca	6.1E-02 ca	6.1E-01 ca	
3.0E-02 i		3.0E-02 r		0	0.10	10453-86-8 Resmethrin		2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc	
5.0E-02 h		5.0E-02 r		0	0.10	299-84-3 Ronnel		3.3E+03 nc	3.4E+04 nc	1.8E+02 nc	1.8E+03 nc	
4.0E-03 i		4.0E-03 r		0	0.10	83-79-4 Rotenone		2.6E+02 nc	2.7E+03 nc	1.5E+01 nc	1.5E+02 nc	
2.5E-02 i		2.5E-02 r		0	0.10	78578-05-0 Savy		1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc	
5.0E-03 i		5.0E-03 r		0	0.10	7783-30-8 Selenious Acid		3.3E+02 nc	3.4E+03 nc	1.8E+02 nc	1.8E+03 nc	
5.0E-03 i		5.0E-03 r		0	0.01	7782-48-2 Selenium		3.8E+02 nc	8.5E+03 nc	1.8E+02 nc	1.8E+03 nc	
5.0E-03 h		5.0E-03 r		0	0.10	630-10-4 Selenourea		3.3E+02 nc	3.4E+03 nc	1.8E+02 nc	1.8E+03 nc	

ca=CANCER PRG nc=NONCANCER PRG sat=SATURATION make=CEILING LIMIT

where: nc < 100X ca *where: nc < 10X ca

FOR PLANNING PURPOSES												
TOXICITY VALUES												
SFC 1/(mg/kg-d) 1/(mg/kg-d)	RDo 1/(mg/kg-d) 1/(mg/kg-d)	SFI 1/(mg/kg-d) 1/(mg/kg-d)	RDI 1/(mg/kg-d) 1/(mg/kg-d)	V O skin C ABS	VF (m ³ /kg)	CAS No.	Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m ³)	Tap Water (ug/l)		
9.0E-02 i		9.0E-02 r	0 0.10		74051-80-2	Sethoxydim	5.9E+03 nc	6.1E+04 nc	3.3E+02 nc	3.3E+03 nc		
5.0E-03 i			0 0.01		7440-22-4	Silver and compounds	3.8E+02 nc	8.5E+03 nc		1.8E+02 nc		
1.2E-01 h	5.0E-03 i	1.2E-01 r	2.0E-03 r	0 0.10	122-34-9	Simazine	3.7E+00 ca*	1.6E+01 ca*	5.6E-02 ca	5.6E-01 ca		
4.0E-03 i		4.0E-03 r	0 0.10		26628-22-8	Sodium azide	2.6E+02 nc	2.7E+03 nc	1.5E+01 nc	1.5E+02 nc		
2.7E-01 h	3.0E-02 i	2.7E-01 r	3.0E-02 r	0 0.10	148-18-5	Sodium diethylthiocarbamate	1.6E+00 ca	7.1E+00 ca	2.5E-02 ca	2.5E-01 ca		
2.0E-05 i		2.0E-05 r	0 0.10		62-74-8	Sodium fluoroacetate	1.3E+00 nc	1.4E+01 nc	7.3E-02 nc	7.3E-01 nc		
1.0E-03 h		1.0E-03 r	0 0.10		13718-26-8	Sodium metavanadate	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc		
6.0E-01 i			0 0.01		7440-24-6	Stronium, stable	4.6E+04 nc	1.0E+05 max		2.2E+04 nc		
3.0E-04 i		3.0E-04 r	0 0.10		57-24-9	Strychnine	2.0E+01 nc	2.0E+02 nc	1.1E+00 nc	1.1E+01 nc		
2.0E-01 i		2.9E-01 i	1 0.10	2.8E+04	100-42-5	Styrene	2.2E+03 sat	2.2E+03 sat	1.1E+03 nc	1.6E+03 nc		
2.5E-02 i		2.5E-02 r	0 0.10		86671-89-0	Systhane	1.6E+03 nc	1.7E+04 nc	9.1E+01 nc	9.1E+02 nc		
1.5E+05 h		1.5E-05 h	0 0.03		1146-01-6	2,3,7,8-TCDD (dioxin)	3.8E-06 ca	2.4E-06 ca	4.5E-08 ca	4.5E-07 ca		
7.0E-02 i		7.0E-02 r	0 0.10		34014-18-1	Tebuthiuron	4.6E+03 nc	4.8E+04 nc	2.6E+02 nc	2.6E+03 nc		
2.0E-02 h		2.0E-02 r	0 0.10		3883-96-8	Temephos	1.3E+03 nc	1.4E+04 nc	7.3E+01 nc	7.3E+02 nc		
1.3E-02 i		1.3E-02 r	0 0.10		5602-51-2	Terbacil	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc		
2.5E-05 h		2.5E-05 r	0 0.10		15074-79-9	Terbufos	1.6E+00 nc	1.7E+01 nc	9.1E-02 nc	9.1E-01 nc		
1.0E-03 i		1.0E-03 r	0 0.10		886-50-0	Terbutryn	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc		
3.0E-04 i		3.0E-04 r	0 0.10		95-94-3	1,2,4,5-Tetrachlorobenzene	2.0E+01 nc	2.0E+02 nc	1.1E+00 nc	1.1E+01 nc		
2.6E-02 i	3.0E-02 i	2.6E-02 i	1 0.10	2.6E-04	60-20-6	1,1,1,2-Tetrachloroethane	4.8E+00 ca	1.2E+01 ca	2.6E-01 ca	4.3E-01 ca		
2.0E-01 i		2.0E-01 i	1 0.10	4.5E-04	73-34-5	1,1,2,2-Tetrachloroethane	9.0E-01 ca	2.4E+00 ca	3.3E-02 ca	5.5E-02 ca		
5.2E-02 e	1.0E-02 i	2.0E-03 e	1 0.02 r	1 0.10	1.2E-04	127-18-4	Tetrachloroethylene (PCE)	7.0E+00 ca	2.5E+01 ca	3.3E+00 ca	1.1E+00 ca	
						"CAL-Modified PRG" (PEA, 1994)			3.2E-01			
						2,3,4,6-Tetrachlorophenol	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc		
						D,a,a-a-Tetrachlorotoluene	2.2E-02 ca	9.5E-02 ca	3.4E-04 ca	3.4E-03 ca		
2.0E+01 h		2.0E+01 r	0 0.10		5216-25-1	Tetrachlorovinphos	1.9E+01 ca	7.9E+01 ca	2.8E-01 ca	2.8E+00 ca		
2.4E-02 h	3.0E-02 i	2.4E-02 r	3.0E-02 r	0 0.10	981-11-5	Tetraethylthiopyrophosphate	3.3E+01 nc	3.4E+02 nc	1.8E+00 nc	1.8E+01 nc		
					3889-24-5	Thallic oxide	5.4E+00 nc	1.2E+02 nc		2.6E+00 nc		
					1314-32-5		6.9E+00 nc	1.5E+02 nc		3.3E+00 nc		
					563-68-8	Thallium acetate	6.1E+00 nc	1.4E+02 nc		2.9E+00 nc		
					6533-73-9	Thallium carbonate	6.1E+00 nc	1.4E+02 nc		2.9E+00 nc		
					7781-12-0	Thallium chloride	6.1E+00 nc	1.4E+02 nc		2.9E+00 nc		
					10102-45-1	Thallium nitrate	6.9E+00 nc	1.5E+02 nc		3.3E+00 nc		
					12039-52-0	Thallium selenite	6.9E+00 nc	1.5E+02 nc		3.3E+00 nc		
					7446-18-6	Thallium sulfate	6.1E+00 nc	1.4E+02 nc		2.9E+00 nc		
					28249-77-6	Thiobencarb	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc		
					3689-24-5	2-(Thiocyanomethylthio)-benzothiazole (TCMTB)	2.0E+03 nc	2.0E+04 nc	1.1E+02 nc	1.1E+03 nc		
					39196-18-4	Thiofanox	2.0E+01 nc	2.0E+02 nc	1.1E+00 nc	1.1E+01 nc		
					23664-05-8	Thiophanate-methyl	5.2E+03 nc	5.5E+04 nc	2.9E+02 nc	2.9E+03 nc		
					131-26-8	Thiram	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc		
					n/a	Tin (inorganic, see tributyltin oxide for organic tin)	4.6E+04 nc	1.0E+05 max	2.2E+04 nc	2.2E+04 nc		

FOR PLANNING PURPOSES															
TOXICITY VALUES				SOIL FACTORS				CONTAMINANT				PRELIMINARY REMEDIAL GOALS (PRGs)			
SFO 1/m ³ (kg/g-d) 1/m ³ (mg/kg-d)	RDo SFI O ^a C ABS Vf Skin C ABS (m ³ /kg)	RTDI 1/m ³ (mg/kg-d)	RTDI 1/m ³ (mg/kg-d)	V Skin C ABS (m ³ /kg)	Vf C ABS (m ³ /kg)	CAS No.		Residential Soil (mg/kg)	Industrial Soil (mg/kg)	Ambient Air (ug/m ³)	Tap Water (ug/l)				
2.0E-01 i	3.2E-00 h	1.1E-01 h	1.1E-01 h	1.0E-01 r	1.0E-01 r	1.3E+04	108-88-3	Toluene	1.9E+03 nc	2.8E+03 sat	4.0E+02 nc	7.2E+02 nc			
3.2E+00 h	1.9E-01 i	2.0E-01 h	2.0E-01 h	6.0E-01 r	6.0E-01 r	95-80-7	Toluene-2,4-diamine	1.4E-01 ca	6.0E-01 ca	2.1E-03 ca	2.1E-02 ca				
1.9E-01 i	1.1E+00 i	7.5E-03 i	7.5E-03 i	2.0E-01 r	2.0E-01 r	95-70-5	Toluene-2,5-diamine	3.9E-04 nc	1.0E+05 max	2.2E+03 nc	2.2E+04 nc				
1.1E+00 i	5.0E-03 i	1.0E-02 i	1.0E-02 i	0.10	0.10	823-40-5	Toluene-2,6-diamine	1.3E-04 nc	1.0E+05 max	7.3E+02 nc	7.3E+03 nc				
5.0E-03 i	3.0E+00 h	1.0E-02 i	1.0E-02 i	0.10	0.10	106-49-0	p-Toluidine	2.3E+00 ca	1.0E+01 ca	3.5E-02 ca	3.5E-01 ca				
3.0E-05 i	2.9E-02 h	1.0E-02 i	1.0E-02 i	0.10	0.10	8001-35-2	Toxaphene	4.0E-01 ca	1.7E+00 ca	6.0E-03 ca	6.1E-02 ca				
3.4E-02 h	1.0E-02 i	5.7E-02 h	5.7E-02 h	1.0E-02 r	1.0E-02 r	66841-25-6	Tralomethrin	4.9E+02 nc	5.1E+03 nc	2.7E+01 nc	2.7E+02 nc				
2.9E-02 h	9.0E-02 h	3.4E-02 r	3.4E-02 r	0.10	0.10	2803-17-5	Triallate	8.5E+02 nc	8.9E+03 nc	4.7E+01 nc	4.7E+02 nc				
1.1E-02 i	1.0E-02 i	2.9E-02 r	2.9E-02 r	0.10	0.10	82097-50-5	Triasulfuron	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc				
1.0E-02 i	9.0E-02 h	5.7E-02 h	5.7E-02 h	1.0E-02 r	1.0E-02 r	615-54-3	1,2,4-Tribromobenzene	3.3E+02 nc	3.4E+03 nc	1.8E+01 nc	1.8E+02 nc				
9.0E-02 h	5.7E-02 h	2.9E-01 x	2.9E-01 x	1.0E-04	1.0E-04	56-35-9	Tributyltin oxide (TBT0)	2.0E+00 nc	2.0E+01 nc	1.1E-01 nc	1.1E+00 nc				
5.7E-02 i	4.0E-03 i	5.6E-02 i	5.6E-02 i	4.0E-03 r	4.0E-03 r	634-93-5	2,4,6-Trichloroaniline	1.3E+01 ca	5.6E+01 ca	2.0E-01 ca	2.0E+00 ca				
1.1E-02 e	6.0E-03 e	6.0E-03 e	6.0E-03 e	6.0E-03 r	6.0E-03 r	38663-50-2	2,4,6-Trichloroaniline hydrochloride	1.5E+01 ca	6.6E+01 ca	2.3E-01 ca	2.3E+00 ca				
3.0E-01 i	5.0E-03 i	2.0E-01 h	2.0E-01 h	1.0E-02 r	1.0E-02 r	120-82-1	1,2,4-Trichlorobenzene	6.2E+02 nc	5.5E+03 sat	2.1E+02 nc	1.9E+02 nc				
1.0E-01 i	1.0E-01 i	1.0E-01 r	1.0E-01 r	0.10	0.10	95-95-4	1,1,1-Trichloroethane	3.0E+03 sat	3.0E+03 sat	1.0E+03 nc	1.3E+03 nc				
1.1E-02 i	1.1E-02 i	1.1E-02 i	1.1E-02 i	0.10	0.10	1.4E-04 79-00-5	1,1,2-Trichloroethane	1.4E+00 ca	3.2E+00 ca	1.2E-01 ca	2.0E-01 ca				
1.0E-02 i	8.0E-03 i	6.0E-03 r	6.0E-03 r	1.0E-02 r	1.0E-02 r	79-01-6	Trichloroethylene (TCE)	7.1E+00 ca*	1.7E+01 ca*	1.1E+00 ca*	1.6E+00 ca*				
3.0E-01 i	5.0E-03 i	2.0E-01 h	2.0E-01 h	1.0E-03 r	1.0E-03 r	75-55-4	Trichlorofluoromethane	7.1E+02 nc	2.4E+03 nc	7.3E+02 nc	1.3E+03 nc				
1.0E-01 i	1.0E-01 i	1.0E-01 r	1.0E-01 r	0.10	0.10	95-95-4	2,4,5-Trichlorophenol	6.5E+03 nc	6.8E+04 nc	3.7E+02 nc	3.7E+03 nc				
1.1E-02 i	7.0E-00 h	6.0E-03 i	5.0E-03 i	1.0E-02 r	1.0E-02 r	88-06-2	2,4,6-Trichlorophenol	4.0E+01 ca	1.7E+02 ca	6.2E-01 ca	6.1E+00 ca				
5.0E-03 h	3.0E+01 i	2.0E-01 h	2.0E-01 h	8.0E-03 r	8.0E-03 r	93-76-5	2,4,5-Trichlorophenoxyacetic Acid	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc				
5.0E-03 i	7.0E-00 h	6.0E-03 i	5.0E-03 i	5.0E-03 r	5.0E-03 r	93-72-1	2-(2,4,5-Trichlorophenoxy) propionic acid	5.2E+02 nc	5.5E+03 nc	2.9E+01 nc	2.9E+02 nc				
7.0E-00 h	7.7E-03 i	5.0E-03 r	5.0E-03 r	1.0E-02 r	1.0E-02 r	598-77-6	1,1,2-Trichloropropane	5.1E+01 nc	1.9E+02 nc	1.8E+01 nc	3.0E+01 nc				
7.7E-03 i	3.7E-02 h	3.0E-01 i	3.0E-01 i	7.7E-03	7.7E-03	96-18-4	1,2,3-Trichloropropane	6.6E-03 ca	1.5E-02 ca	9.6E-04 ca	1.6E-03 ca				
3.7E-02 h	7.7E-03 i	7.7E-03 r	7.7E-03 r	5.0E-03 r	5.0E-03 r	96-19-5	1,2,3-Trichloropropene	7.5E+01 nc	2.9E+02 nc	1.8E+01 nc	3.0E+01 nc				
3.0E-01 i	8.6E-00 h	8.6E-00 h	8.6E-00 h	1.0E-02 r	1.0E-02 r	3.1E-03	1,1,2-Trichloro-1,2,2-trifluoroethane	4.1E+03 sat	4.1E+03 sat	3.1E+04 nc	5.9E+04 nc				
3.0E-03 i	3.0E-03 r	3.0E-03 r	3.0E-03 r	0.10	0.10	58138-08-2	Tridiphane	2.0E+02 nc	2.0E+03 nc	1.1E+01 nc	1.1E+02 nc				
2.0E-03 r	7.7E-03 i	7.7E-03 r	7.7E-03 r	2.0E-03 i	2.0E-03 i	1.0E-02 r	Triethylamine	2.2E+01 nc	8.0E+01 nc	7.3E+00 nc	1.2E+01 nc				
7.7E-03 i	3.0E-02 r	5.0E-04 i	5.0E-04 i	0.10	0.10	1.2E-04	Trifluralin	5.8E+01 ca**	2.5E+02 ca**	8.7E-01 ca*	8.7E+00 ca*				
3.0E-02 h	7.0E-03 i	9.0E-03 i	9.0E-03 i	3.7E-02 r	3.7E-02 r	1.0E-02 r	Trimethyl phosphate	1.2E+01 ca	5.2E+01 ca	1.8E-01 ca	1.8E+00 ca				
7.0E-03 i	2.0E-02 r	2.0E-02 r	2.0E-02 r	0.10	0.10	512-56-1	1,3,5-Trinitrobenzene	3.3E+00 nc	3.4E+01 nc	1.8E-01 nc	1.8E+00 nc				
7.0E-03 h	7.0E-03 i	7.0E-03 r	7.0E-03 r	0.10	0.10	99-35-4	Trinitrophenylmethylnitramine	6.5E+02 nc	6.8E+03 nc	3.7E+01 nc	3.7E+02 nc				
7.0E-03 i	5.0E-05 i	5.0E-05 i	5.0E-05 i	0.10	0.10	479-95-8	2,4,6-Trinitrotoluene	1.5E+01 ca**	6.4E+01 ca**	2.2E-01 ca**	2.2E+00 ca**				
3.0E-02 i	5.0E-04 i	3.0E-02 r	3.0E-02 r	1.0E-02 r	1.0E-02 r	1582-09-8	Uranium (soluble salts)	2.3E+02 nc	5.1E+03 nc	1.1E+02 nc	1.1E+02 nc				
3.0E-02 h	7.0E-03 i	7.0E-03 r	7.0E-03 r	0.10	0.10	7440-61-1	Vanadium pentoxide	5.4E+02 nc	1.2E+04 nc	2.6E+02 nc	3.3E+02 nc				
7.0E-03 i	2.0E-02 r	2.0E-02 r	2.0E-02 r	0.01	0.01	1314-62-1	Vanadyl sulfate	1.5E+03 nc	3.4E+04 nc	7.3E+02 nc	7.3E+02 nc				
7.0E-03 i	2.0E-02 r	2.0E-02 r	2.0E-02 r	0.01	0.01	13701-70-7	Vanadium sulfate	1.5E+03 nc	3.4E+04 nc	3.7E+01 nc	3.7E+01 nc				
1.0E-03 i	1.0E-03 i	1.0E-03 r	1.0E-03 r	0.10	0.10	1925-77-7	Vernam	6.5E+01 nc	6.8E+02 nc	3.7E+00 nc	3.7E+01 nc				

ca=CANCER PRG
nc=NONCANCER PRG
sat=SATURATION
max=CEILING LIMIT
*where: nc < 10X ca
**where: nc < 10X ca

extrapolation



